The Builder.

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Additions to Town Hall Buildings, Clerkenwell.—Mr. C. Evans-Vaughan, F.R.I.B.A., Architect.. ..... *Single-Page Ink-Photo.*
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Water Supply from the Chalk.

(SECOND ARTICLE.)*

THE distribution of water in the chalk is to a large extent influenced by the solid and superficial deposits lying upon that formation, and which frequently prevent rain from soaking into it over many square miles. The water level in the chalk under such deposits, where they are impervious, is maintained only by what can get there from the more favoured areas where the chalk crops out at the surface. Over a great portion of the London basin these overlying deposits are from 100 ft. to 350 ft. in thickness, whereof the uppermost portion (omitting the Drift and Bagshot sands) is a stiff, impervious formation, known as the London clay; beneath this comes a variable series of gravel, sand, and clay in thin beds, especially well developed in the southern and south-western parts of the basin, whilst these beds are paralleled in the western and northern part of the basin by a mottled clay, the two series being known as the Woolwich and Reading beds respectively. Sometimes they are developed together in the south-central part of the basin. With these we include the so-called Oldhaven and Blackheath series of the Geological Survey, made up of gravels and sands in North-west Kent, and pure sands in the eastern part of that county. Below all, comes a series of sands reposing directly on the chalk, the line of junction being well marked by a thin bed (1 ft. to 4 ft.) of large green-coated flints. These sands are called Thanet sands over a great portion of the basin, but are treated as part of the Reading series in the western and part of the northern sections.

In descending order, therefore, we get the following sequence:—

1. Drift: gravels, sands, brick earth, and clays.

2. Bagshot beds: chiefly sands, but many clay beds, and occasionally a bed of lignite.

3. London clay: sandy at top in certain localities, bulk of the formation made of clay, but basement bed of gravels and sands.

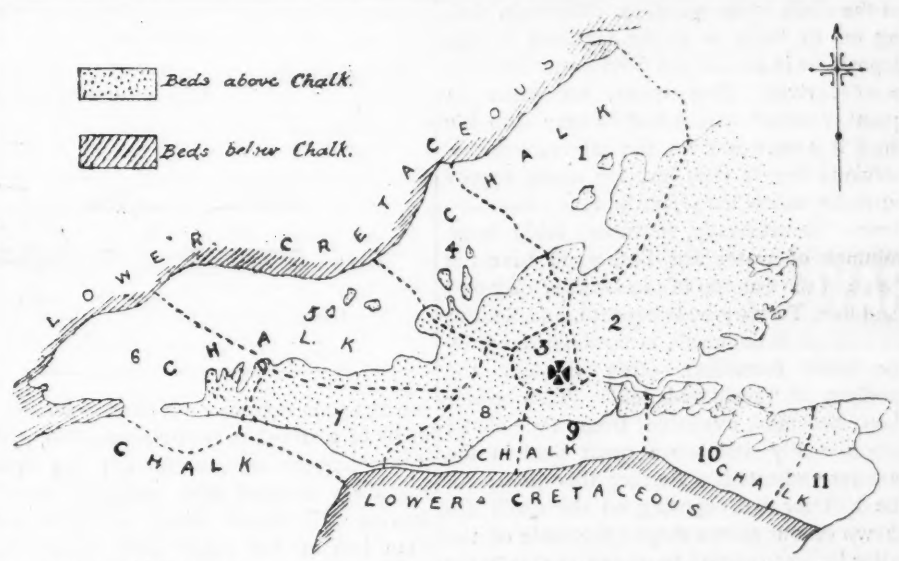


Fig. 1.—Sketch Map of a Large Part of the London Basin, including North Kent, showing the Proposed Division of the Chalk Areas into Eleven Sections.

4. Woolwich beds: gravel and sand, clay beds and partings, loam at base.

5. Reading beds: chiefly mottled clay, and (following the Geological Survey) sand at base. This latter frequently reposes on the chalk direct in those localities where the Thanet sands are absent, and the formation often dovetails into the Woolwich where the two formations are represented.

6. Thanet sands: green sand, loamy at base.

7. "Bull-head" bed: large green-coated flints.

8. Chalk.

The distribution of these beds over the area under discussion may be gathered on glancing at our sketch map (fig. 1). In this they are blocked together (excluding the Drift and chalk), and are distinguished by little black dots. Owing to local irregularities, the London clay may rest directly on the chalk, and the pebble beds of the Woolwich series have here and there cut their way through the underlying formations, and even into part of the chalk. At the same time, disregarding these little freaks, the succession is wonderfully constant, and certainly holds good over the greater part of the London basin.

The dotted area on the map may be regarded as impervious except at the fringe where the partially porous beds beneath the London clay commonly crop out at the surface. These latter are grouped together and are distinguished by a separate sign in other sketch maps of this article.

Many wells pierce these beds to the chalk, where a copious supply of excellent water is nearly always found. The chief difficulties in the way of boring operations are the large tabular concretions found on several horizons in the London clay, known as "septaria." The clay is readily pierced and, rarely, a sandy bed in it has yielded water. The base of the London clay and the Woolwich and Reading series offer many obstructions to the borer, especially where the sandy beds are water-logged, and the finer sand becomes, in consequence, a veritable "quicksand." This nuisance is much greater than the beds of pebble gravel so frequently met with on the same horizon. The Thanet sands usually present no difficulty, but the "bull-head" bed is tough and requires some breaking through. The water met with in all the beds on the way down from the surface proved itself very useful in supplying various public and private institutions many years ago; but for several reasons the water direct from the chalk beneath is now more largely preferred, and it is customary, in well-sinking, to line the tube or well so that the water from these beds shall not mix with that from the chalk,

* For first article, see *Builder* of December 17, 1898.

the tube being taken right down through them, and ending well into the chalk. Again, it has been found desirable to sink many feet into the chalk (not lined) to get the best results; it is not sufficient to just tap the chalk, where a large supply is required. Our object in broaching the subject of water supply from beds above the chalk is to show that there is no hope of a large public supply being obtained from them, and it is doubtful whether the water derived from those levels—at any rate, in the Metropolitan central area—would be permitted to mix with that from the chalk in any attempt to augment the supply that may be got from the latter.

We now turn to the distribution of superficial drift deposits. These may be classified for our present purpose into two groups, namely (1) those lying on the Tertiary beds (the dotted portion of the sketch [map, fig. 1) and (2) those resting on the chalk. Group No. 1 may be dismissed in a few words, for, lying for the most part on an impervious clay (London clay), they have no influence on the chalk water question. The rain falling on to them is either retained in the deposit, or is discharged from them into the nearest river. That water, enormous in quantity, which would find its way into the chalk if it were not for the intervening impervious clay, is thus lost for water supply purposes unless the water be taken from the river. Occasionally, however, fairly large volumes of water are discharged over the fringe of the outcrop of the London clay and the lower Tertiary beds beneath, and finding its way on to the chalk, is swallowed up by the latter formation, often through the medium of "swallow-holes." This water then becomes available from the chalk, which really imbibes a great deal in the manner indicated. Neither this group of the drift nor that reposing on the chalk are shown on our sketch maps—the scale of the latter being too small to permit of that being done.

Turning to Group No. 2, we find that the drift resting on the chalk is of variable lithological character, here a sand, there a clay, sometimes loamy brick-earth, and gravel. This drift is distributed along the river valleys and on the higher plateaux of the chalk plains. Where sand or gravel, or both of them, occur lying immediately on the chalk, rain water soaks easily through them and rapidly finds its way into the chalk, almost as though they did not exist—they are readily porous. But where the brick-earth is alone, or in conjunction with them on the chalk, there is a partial stoppage in the flow of the water, for unless the brick-earth is very sandy, but little water gets through into the chalk. Where the clay beds of the drift are developed, either singly or in company with either of the foregoing drift deposits, rain water cannot get through at all, though much of it may be discharged on to the surrounding outcrops of chalk, and is thus available. When it finds its way into a river it may be lost to us, unless the chalk were exposed farther down the river valley and was absorbent enough to abstract water direct from the river.

The influence of this drift on local water-bearing properties of the chalk is now well understood. The Royal Commission of 1893 found that, taking that portion of the Thames basin which lies above the intakes of the water companies, the total area of chalk in it is 1,005 square miles. Of this area there

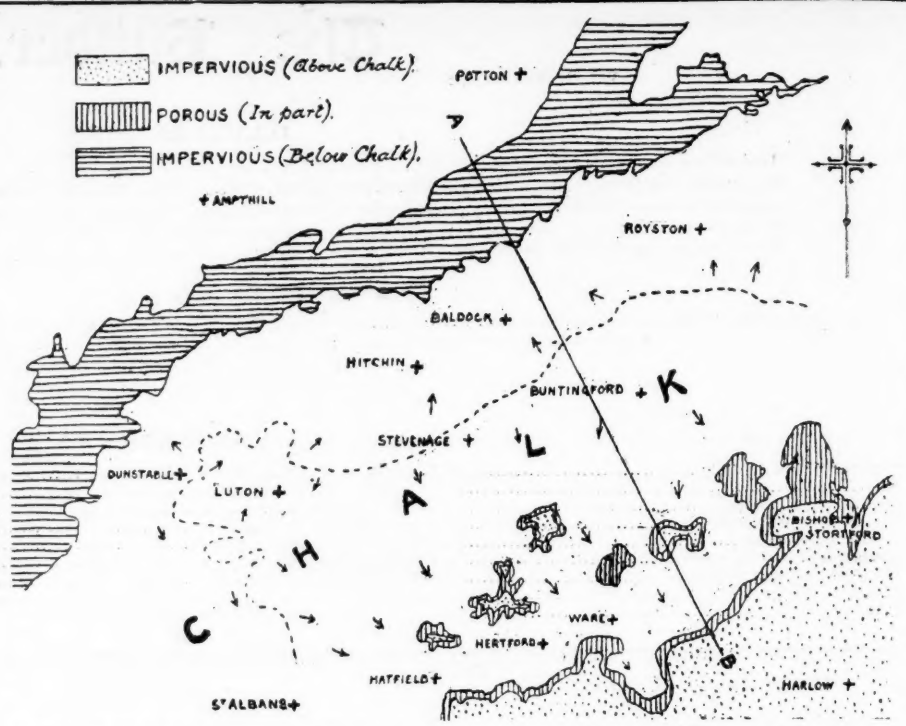


Fig. 2.—Sketch Map of Part of Herts, showing the Porous, Partly Porous, and Impervious Beds, with the Outcrop of Chalk, in District No. 1.

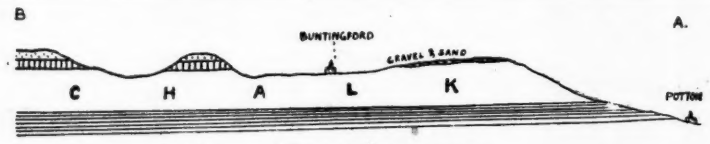


Fig. 3.—Section through District No. 1.

are 292 square miles covered with superficial drifts of a mixed or partly permeable, partly rather impermeable, character; 135 square miles are covered with pervious deposits, leaving 578 square miles, or rather more than half of the whole area, where bare chalk comes to the surface. If, however, we take the bare chalk, and the chalk concealed by a permeable cover to be the same (following the Commissioners), the whole area of readily permeable material forming the surface in this portion of the Thames basin is 713 miles.

In regard to another area, lying to the east of the Kent Water Company's ground, but to the west of the Medway, the late Mr. Topley has estimated that the total chalk area amounts to 78 square miles. Of these, 47 are bare chalk, 18 mixed drifts, and 13 chiefly permeable outliers and spurs of Lower Tertiary strata. The total extent of the chalk east of the Medway amounts to 361 square miles, whereof 207 are bare chalk, 136 mixed drifts, and 18 chiefly permeable Tertiary strata.

As the result of separate and special investigations by Mr. Middleton and Mr. Topley, the conclusion arrived at in another area, the Lea Valley above Feilde's Weir, is about 422 square miles. This has been divided as follows:—

	Sq. miles	Sq. miles
Bare chalk	95	
Chalk covered with permeable beds ...	50	
		145
Chalk covered with mixed beds, partly permeable and partly impermeable ...	60	
Impermeable beds draining on to the chalk	146	
Impermeable beds not draining on to the chalk...	71	
		277
Total		422

We shall find these figures useful when dealing with the water-bearing capacity of the chalk in the eleven separate areas (see fig. 1), and in the summary which we propose to give.

Let us now consider more in detail the areas marked out in fig. 1, which, as the reader will have noticed, correspond with the divisions made in our previous article (December 17, 1898 (pp. 564-7). The cross in the centre of the diagram (in district No. 3) marks the position of London. It will be seen that the sketch map comprises more than the London basin technically so-called, even if we include the north Kent area as being within it, as geologists mostly do. We think the Commissioners might have materially added to the interest of the inquiry (1893), and have given the chalk a better chance, had they assumed that the water in the chalk immediately outside the London basin was also largely available as a source of supply. It is admitted that water thus obtained might have to be brought over into the watershed at the surface, and the engineering part of the problem might thus have to be considered apart from a general scheme of getting the water within the watershed, but the added engineering does not amount to even the shadow of a difficulty, and could be easily overcome. If this great chalk area just outside the basin is admitted for supply purposes, and we propose that it should, the usual figures relating to the outgift of water from the chalk are capable of great augmentation. Moreover, this places the chalk water supply question in a totally different and more serious light, as we shall see.

District No. 1.—The area comprised within this is roughly sketched in fig. 2,

and the general structure of the ground may be better understood on examining the section, fig. 3. As before mentioned, this district is already extensively drawn upon for the public supply. The New River Company has captured the whole of the Chadwell spring, which rises from the chalk at Amwell, near Hertford. The flow of this spring is very variable, according to seasons of drought, which seems to show that the bulk of the water comes from but little depth from within the chalk. Its maximum flow per day is about 4,000,000 gallons, but sinking as low as 500,000 gallons per day in very dry weather. It has, however, sometimes averaged over 4,000,000 gallons a day for a year. In addition to this, the same company takes a considerable quantity from wells, by pumping, three wells being situated near Ware, others at and near St. Margaret's, and between Broxbourne and Cheshunt, at Cheshunt, near Enfield, at Edmonton, Hornsey, and New Southgate. The average amount taken from these wells in 1891 was 8½ million gallons, and the wells of this company, no doubt, yield much more at the present time. We shall have to make a slight reduction on this figure, as some of the wells (at Hornsey and New Southgate) are situated just outside our district No. 1. The East London Company also derives a considerable quantity of water from the chalk of the Lea Valley, the precise amount of which, however, we are not aware of at the present moment. It amounted to 1,750,000 gallons in 1891, and will now, probably, have to be doubled, or trebled.

Sir John Evans has estimated that the New River and East London Companies were taking, in 1891, about 11,000,000 gallons of water daily from the chalk; and, at the present time, we may assume that they get at least 14,000,000 from that source. That does not by any means exhaust the available supply, and the 1893 Commission found that even in very dry years the companies could calculate on obtaining at least 40,000,000 gallons a day from wells in the Lea valley alone. It was a pity that this promising information did not suggest to the Commissioners the advisability of more closely studying the chalk areas to the north-east and south-west of that valley, and of paying the same attention all round to chalk in the western parts of the basin.

It should be borne in mind that a great many wells, other than those already mentioned, exist in this district No. 1. Mr. Whitaker, who has always taken a great interest in borings, records practically, all of them, though we do not often see information as to the output of the wells. We select a few within our district either sunk direct into the chalk, or through Tertiary beds down to it. These are for the most part wells sunk by local waterworks companies or district authorities.

Abbots' Langley waterworks; water level, 5½ ft. down.

Barnet waterworks; water rises to 155 ft. from surface, and is lowered by pumping to 186 ft. Very copious yield.

Bushey; Colne Valley waterworks. Old well (1876) yielded in March, 1886, about 820,000 gallons per day; in May, 1887, 650,000 gallons; in 1881, the pumps having been lowered 20 ft., about 1,000,000 per day were obtained. A new well was sunk in 1885-7, and joined to the old by a tunnel, when the water flowed from the top of the bore-hole at the rate of 656,000 gallons per day, which amount has subsequently decreased, as recorded by Mr. Whitaker, to 555,000 gallons per day.

Gade Valley; Paper Mills, three wells. (1) Apsley Mill; supply 260,000 gallons per day. (2) Nash Mill; supply 467,000 gallons per day. (3) Home Park Mill; supply 473,000 gallons per day.

Watford; Local Board. Estimated supply 792,000 gallons per day.

Some of these wells, as at Watford and Bushey, are on the borders of our districts Nos. 1 and 4, but are included here for convenience, as much of the inquiry made in recent years includes both the valleys of the Lea and Colne. A cry was raised that the water abstracted had already depleted the available supply from those parts of Herts, and the 1893 Commission sent Mr. Middleton to inquire into the matter. As was anticipated, he found that the reports were without foundation, such alleged depletion being merely seasonal variations in water-level. He discovered that there was no reliable evidence of the permanent depletion of any well except from local pumping, and the evidence regarding the drying up of certain wells was confined (except as regards local pumping) to such as were sunk in a high-water season, and were not sufficiently deep to meet the seasonal fluctuations, or to such as are not supplied from the general area of the chalk basin. He further ascertained that there did not appear to be any evidence of the permanent lowering of the source of any river within the areas alluded to.

This is most interesting evidence in regard to our present inquiry, for, in spite of the numerous wells and the large body of water at present abstracted (which, with what the water companies take, and the private wells, possibly amounts to about 21,000,000 gallons per day) we see that practically no impression is made on the water-bearing capacity of even this limited portion of the chalk area. As we said in our last article on this subject, the question of water supply from the chalk is eminently a local one, and by the comparative absence of large fissures, or by a bore-hole of insufficient diameter, a well can often be easily pumped dry, especially when shallow.

Again, it must not be assumed that because the output of a well gradually decreases, and the water-level is lowered in it, that the area is necessarily running dry. Continual pumping towards a central point tends to the accumulation of insoluble matters brought by the water at that point, which partially clogs up the joints and fissures which act as the underground water conduits. If several wells in the same vicinity showed the same symptoms, that would be a different matter. We submit that in this district alone a great deal more water might be obtained if wells for the public supply were more numerous and placed closer together. They should be far enough apart not to interfere with each other's "cone of depression;" they do not do that at present, as we have seen, so that the judicious planting of intermediate wells might have the effect of showing us what may really be drawn from that part of the chalk area without resulting in serious depletion.

The sinuous dotted lines on our sketch-map, fig. 2, show the underground watershed of the chalk; whilst the arrows indicate the direction of flow of underground water in that formation. The information is adapted from the elaborate map drawn up by Mr. Middleton. It is useful as indicating where a well may not be sunk—*i.e.*, anywhere along that underground watershed. Failures to get a good supply from the chalk have frequently arisen from the well-boring being situated on or very near to an underground divide, such as this.

It has frequently been remarked that if we abstract so much water from the chalk we shall inevitably deplete the rivers arising from within the underground watershed. Nobody will gainsay that. But we do not hold briefs for any particular rivers, and it seems only natural from a water-supply standpoint that it should be more wholesome to capture the water underground than to wait until it rises to the surface and becomes polluted. Rivers are simply the discharge of surplusage, and if the watersheds underground only coincided with those above ground we might be well assured that all that we took from underground would be at the expense of that surplusage. But these watersheds do not coincide, and it is in the highest degree probable, in most cases, that by capturing the water underground we are preventing leakage into other basins, or preventing absolute waste, as when the water finds its way underground into the sea. We do not think, therefore, that when 1,000,000 gallons of water are captured underground, that that means, in the majority of instances, that the rivers above, in the watershed in which the well is sunk, are depleted to the extent of 1,000,000 gallons. They will suffer to some extent, no doubt, but not to the full extent, and that is why it is more economical, as saving water, to go underground for it. These observations specially apply to district No. 1 under consideration, for much of the water from the chalk within it runs away under Essex, and is partially lost.

In our next article on this subject we purpose to commence with district No. 2, in Essex, to see what becomes of the water referred to.

NOTES.

The New Vauxhall Bridge.

WHEN we published last week the design for the new Vauxhall Bridge we abstained from any comment, leaving our readers to form their own opinion. But we think it is really necessary that some protest should be made, while there is time, against the design as it stands. Although we have escaped the actual repetition of Blackfriars Bridge with which we were threatened, just the same kind of mistake has been made in treating the facing of the pier as an immense thick short column, in this case not carrying a balcony, as at Blackfriars, but a lamp-standard, or rather a pillar carrying two lamp-brackets. This is designed so as to appear as if it were a kind of continuation of the short stumpy column on the pier. The effect of these, when the bridge is finished, will be almost absurd; they will look like a succession of immense scaffold-poles. The whole treatment is marked by an entire absence of the sense of architectural scale; and this is shown again in the enormous moulding which forms the lowest member of the pier, which falsifies the whole scale of the details, and makes

the rusticated quoins on each side of the column look like toy masonry. In endeavouring to give "great boldness" by the employment of very large rustication in the archivolt course of the arches, and leaving the sprandrels of plain masonry, the very means has been taken to destroy breadth and solidity of effect, by entirely disconnecting the spandrel masonry from the arch. It is the old story; engineers cannot understand what architectural design and scale mean, and as soon as they depart from mere practical building they produce absurdities. If this bridge is allowed to be carried out as designed it will be a laughing-stock to foreign visitors who know anything of architecture.

Burne-Jones's Drawings at the Burlington Club.

THE collection of drawings by Burne-Jones which has been got together at the Burlington Fine Arts Club is of the greatest interest, and shows some qualities of the painter's genius which are not seen in his pictures. The delicacy and beauty of many of the pencil drawings is extraordinary, and even where they are studies for pictures they have their own beauty, peculiar to themselves, and different from that of the pictures. It is interesting to compare the general studies for the whole composition of a picture with the manner in which the details are worked out. We have one large study, for instance, for a wall painting of the splendid episode of the "Masque of Cupid" from the "Faërie Queene." This is only, however, for the composition of the figures, in two groups moving across to the right, divided by a door in the middle of the wall space. The character of the faces has not been much studied, though the scale is pretty large; what the artist meant to make of it we get some idea from the separate studies of the three heads of the lady and the figures of Despite and Cruelty who led her (65). In the general drawing these seem weak in character; in the separate studies of the heads, marked "Crudelitas" and "Sævitia," there is an intensity and fury which takes one by surprise; these heads present qualities that are certainly unusual in Burne-Jones's finished paintings. The studies for the hands and sleeves of two or three of the figures in the "Days of Creation" show how carefully the artist went into such details in his preparatory studies. The finished study for the head of the figure of "Desiderium," for the "Masque of Cupid," is another very fine example; and one rather wonders, when looking at such studies as these, why the artist put so little individual character into the heads in his paintings, when he could show so much of it in his pencil studies. Among other things in the collection we may mention, as of special beauty, the silver-point figure entitled "Antonia" (72), the three pencil designs for the "Song of Solomon" (141), and the twelve designs for subjects from Virgil (158-164). A new side of Burne-Jones, and one little suspected by many, is shown in some of the humorous drawings for children which are exhibited. There are also a good many experiments in different methods of producing effect in a drawing. The whole collection is one which we may feel grateful to the club for having got together. The Introduction to the catalogue, by Mr. Cosmo Monkhouse, gives some interesting details about the painter's opinions and feelings in regard to his art. Among other things he said once that before he began to execute a design "he could always see it on the blank paper as if it had been drawn in lines thereon," so that the actual drawing became a kind of tracing on of these mentally-seen lines. Other painters have had the same faculty—Blake for instance, who is said to have drawn as if he were copying something before him.

Architectural Publications in Germany.

PERHAPS one of the most interesting features in connexion with architectural events in Germany is the increased demand for illustrated publications on the lines of monthly magazines. In every part of Germany we now find an architectural publication, and most of them primarily contain reproductions of designs which may be termed "advanced," or illustrations of furniture and fittings representative of the crafts. It seems difficult to explain the reason for this rapid increase of regular publications, unless it is, perhaps, that the older journals, such as the *Deutsche Bauzeitung* and the *Centralblatt der Bauverwaltung*, have not kept in touch with the modern movement now prevailing in German art circles. It is true that the above-named journals, each comprising four, or at the most eight, pages, and appearing bi-weekly, may be simply regarded as "news-sheets," although their character is scarcely in this direction. Some German architects advance the theory that the men of to-day are acquiring a broader view of their profession, and wish to be kept posted as to what is being done in the world. Others, again, say that the younger school of architects are prone to be copyists, and use the publications for so-called "ideas." Whatever may be the reason, it is an interesting development in German art life, and may, more or less, influence German architecture of the future.

Theatre Building in London During 1898.

EXCEPTING for the constant increase of the suburban playhouse, there has been no activity in theatre building in London during the past year. In fact, not a single new theatre has been opened during 1898 in the West End. With the present year there may, however, be some changes, for the Strand improvement will be doing away with some of the older houses, and new ones will have to take their place elsewhere. Two new theatres, we believe, have already been commenced, one of which is being built for Mr. Charles Wyndham. When the new homes for the drama are taken in hand, we trust that there will, however, be some improvement upon the orthodox model with its intricate plan, nondescript façade, and ugly interior; and what is more, it is to be hoped that the stage will also have a better equipment, and the application of modern methods. Our scenery is too often marred by lack of proper mechanism. In no class of building are we so far behind the other countries of Northern Europe as in the theatre, and it must be remembered that not all Continental theatres have the much-talked-of subsidy. Of the suburban theatres of 1898, the only one that can lay claim to architectural pretentions is the Crown Theatre, Peckham. As to alterations or improvements in the older West End houses, during 1898, the Alhambra Theatre has had a new wing and entrance added, whilst the Theatre Royal, Drury Lane, has been equipped with an installation of electrical stage appliances.

The Metropolitan Fire Brigade, 1898.

THE past year has not been a particularly eventful one as far as fires within the London area are concerned, though there have been several important conflagrations. On the other hand the year has seen some material improvements in our Fire Brigade, amongst them the introduction of a simpler method of calling out the force where a strong attendance is necessary. The introduction of the "District Call" and the "Brigade Call" at last gives us something on the lines of the "medium" and "great" alarms so long practised on the Continent. Then we have the formation of a Central District, which should be of special assistance in coping with outbreaks in the City and West End, and this district should, in time, practically become the main guard of the force. In regard to the *personnel*, we notice that a third officer is to be appointed, but curiously his qualifications are to be more in the engineering than in the constructional direction. A complement of three skilled officers as distinct from the superintendent or non-commissioned officers is, however, still quite inadequate for our requirements. The introduction of the horsed escape is a great improvement, but why the escape should have to be loaded up on a truck, and is not constructed to run on its own wheels, we do not understand. Among minor points the possibility of at last using the telephone on alarm posts deserves mention, as also the somewhat primitive indication of the position of an alarm post by painting the nearest lamp-post in a bright red colour. Altogether, there has been some slight progress in the right direction, and that is already much in a brigade in which the traditions of 1870 are still observed, and modern methods of fire protection have as yet found little favour.

Epping Forest.

A BILL of a somewhat unusual character is prepared, for the coming Session, by the Governors of the Infant Orphan Asylum, at Wanstead. Under the Act for disafforestation of Epping Forest, carried by Sir H. Selwin Ibbetson, M.P., in 1878, the Forest was secured for ever "as an open space for recreation and enjoyment," and Sir Arthur Hobhouse was appointed as arbitrator to determine how much land should be lawfully retained as "curtilage" for each house that had been erected upon the lands then in the hands of the several lords of the manors. On a strip of land at Snaresbrook, bordering upon the Forest, conveyed to them in 1869, the Asylum authorities lately began, through inadvertence, to build a gymnasium; it is to indemnify them from the consequences of their mistake, and to obtain relief from liability under the Act of 1878, which provided that the land should not be built upon, that the Bill in question is to be introduced into the House.

Surveyor's Report for Willesden District.

THE annual Report by Mr. Robson, the Surveyor to the Willesden District Council, contains the usual full and precise information which has always characterised these reports, and which renders them specially valuable documents of their class. Among the points on which information is given we may notice that the tar-paved footways have proved inadequate for the wear of extensive traffic, and it is recommended

that York paving should be substituted in such positions. Nearly 500 new trees have been planted in various roads, all plane trees with the exception of twenty-five acacias; the planes are found to thrive best. There are still several districts where surface-water drainage is inadequate during abnormal rainfall, and it is suggested that this matter should have the attention of the Works Committee as soon as possible. In regard to the flushing of sewers, it has been found that the automatic tanks at the heads of sewers were of little utility on account of their small capacity, and flushing has been carried on, once every fortnight, by flushing vans and meter-barrow with hose attached. "Upwards of 5½ million gallons of water have been used for this work, and the inverts of the sewers are free from deposit where frequent points for the convenience of flushing are provided." It would probably, we think, have been an economy in the long run to have placed larger automatic tanks to begin with. The system of substituting upcast shafts for ventilating grids from the drains has been further pursued with good results; it is noted that complaints have been received in regard to a supposed smell from a grid after the grid had been actually closed. There is a great deal of important information as to drainage and filtration on land, to which we can only call attention in passing. It may be noticed that the sewage from laundries has been difficult to deal with owing to the excess of soapy and greasy matter which will not precipitate, and passes out of the tanks with the effluent. In regard to lighting, it is recorded that although the incandescent street lights used were at first a cause of extra expenditure, while their maintenance was in the hands of the Gas Company, the employment of an improved burner and the maintenance of the lamps by the District Council's own employees has resulted in a great reduction of the expenditure. We recommend the whole Report to the attention of District Councils and their surveyors.

Girton College, Cambridge.

MESSRS. A. WATERHOUSE & SON have been appointed as architects for the additions about to be made to Girton College. The proposed new buildings comprise a dining-hall, with capacity for 300 persons, kitchens, a chapel, lecture-rooms, and rooms for twenty-five students. The completed scheme is estimated to cost about 40,000*l.*, towards which sum the authorities have a total of 18,000*l.*, derived from subscriptions, legacies, and accumulated profits. If the contemplated project can be carried out, the present dining-hall will be converted into an annexe to the library. It is hoped that eventually sufficient funds will be forthcoming to provide for a further block of students' rooms at a cost, it is calculated, of 10,000*l.*

A Memorial to Thomas Campbell.

THE British colony at Boulogne are about to erect a statue to Thomas Campbell, the poet, who died at his house in the Haute Ville, on June 15, 1844. He removed thither, with his niece, after bidding farewell to Moore, Rogers, Milman, and others, at his house, No. 8, Victoria-square, Pimlico, of which he had taken a lease in 1840. The house in the Haute Ville stands close by the one distinguished by a tablet (when we last saw it), in which Le Sage lived, and wherein Charles Churchill died, 1764, when on a visit to Wilkes.

Fine Art Society's Gallery.

THE Fine Art Society has instituted a small exhibition of the works of several artists, each set being grouped together; the result is a very interesting little exhibition. We commence with eleven watercolours by Mr. H. S. Hopwood, Associate of the Society of Painters in Watercolours, who paints in an exceedingly broad and free style both sea and coast subjects and figures; the seas in fact are little more than brush dabs with white spaces between, but the look of sea is fairly given. Among the interiors "Cottage Service in the Hebrides" is not only pathetic in the character and expression of the figures, but remarkable for the bright effect of the small window in the wall opposite, and the mountain landscape just indicated as seen through the glass. Five pictures by Mr. Wyllie follow, two of them excellent yachting pictures; another, "Discharging Timbers in Queenborough Swale," with a white ship at anchor in the river, is the most pleasing of the five in the picturesque sense. Mr. Caffieri's figure subjects do not interest us very much. Mr. John White contributes ten landscapes not marked by any very striking qualities; "Street in Axmouth" is the best. Mr. A. W. Weedon's are in a broader and more true watercolour style, the small drawing entitled "Returning from Sandwich" reminding one a good deal of David Cox. Mr. Napier Hemy occupies the end of the room with some very powerful sea-pieces, somewhat unlike his usual style. "A Strange Sail" is a fine coast sketch with a grand sky, and "Driftwood" an exceedingly wild picture of a grey stormy sea, the character of the rocks suggesting the North Devon Coast. Of Mr. Brewtnall's forced stage effects we have nothing to say; the only one of his contributions which is natural and true is the small one entitled "The Tossing and the Tumbling of the Sea." Mr. Thorne Waite exhibits eleven works, among which the style and tone of "The Brighton Downs" remind one very much of the late Alfred Fripp's work; "Haymakers" is a fine fresh little landscape, and "Cattle at a Pond" a beautiful evening pastoral. Mr. Lucien Davis's overworked figures with no mind in their faces are not worth much in an artistic sense. Those of Mr. Dudley Hardy, though somewhat pretentious in style, include one or two of really fine quality of design and colour; especially the one entitled "A Rest," a seated semi-nude figure amid a very fine harmony of coloured draperies. Some pencil sketches of street types by Mr. Phil May round off the collection.

Messrs. Dowdeswell's Gallery.

THE collection of pencil drawings of figures from real life, by Mr. E. Borough Johnson, at Messrs. Dowdeswell's Gallery, are good studies, but not of very special interest. It is otherwise with the watercolour drawings by Mr. Montague Smyth. These, mostly studies of landscape in Holland and East Anglia, are slightly sketched in and slightly coloured; but the artist has a style of his own, and contrives to indicate a great deal without laboured execution. Among the best are "Dutch Natives," a scene on a quay with a number of stolid Dutch sailors and the coloured sails of the craft rising above; "On the Blythe," where a calm river and the reflected light are rendered with great truth; and "The Day of Rest," a churchyard scene on Sunday, with a remarkably odd and characteristic piece of church architecture; but the whole collection is good and original work, and worth a visit.

A Proposed Model House.

A GROUP of French architects and artists, among whom are Messrs. Alexandre Charpentier, Plumet, Dampf, Desbois, Moreau, Selmersheim and others, have applied for a concession to erect at the Paris Exhibition of 1900 what they describe as a "type de maison moderne." The position for the proposed erection has not yet been decided on, but it will no doubt be carried out, and, considering the position and abilities of the architects and artists who are taking it in hand, it will probably be an erection of considerable interest.

THE WINTER LOAN EXHIBITIONS.

IT would perhaps be impossible to imagine a more striking and even sensational contrast than is afforded by the simultaneous opening of two representative exhibitions, the one of the works of Rembrandt, the other of the works of Burne-Jones. The two names seem to represent almost the opposite extremes of method and aim and feeling in the art of painting. On the one side we have the highest degree of masculine vigour of style and execution, comparative indifference to the charm of colour, little or no sense of pure beauty or of decorative effect, and the almost total absence of sentiment. At the New Gallery we are in the presence of works almost effeminate in sentiment and style, but in which beauty both of colour and of decorative effect is everywhere present and is regarded as the highest end in itself, which are completely removed from real life and entirely pervaded by a poetic sentiment always pleasing and suggestive though somewhat monotonous. The two painters are so different that it is impossible even to compare them; there is no ground for comparison. But the contrast is most effective, and serves to illustrate how wide and varied is the field of the art of painting, in which two men who are both defined as "painters," using the same class of materials and implements, can produce works which seem almost as if intended to appeal to entirely different faculties in our intellectual perception.

The idea of devoting this year's exhibition at Burlington House to Rembrandt was no doubt suggested by the recent exhibition on the Continent, with a desire to show how rich is this country in the works of the painter; for the great majority of the pictures, and all the finest ones, are lent by English owners. There was thus a definite reason for the enterprise, though we can hardly wish that it should be a precedent that the winter loan exhibitions should be confined to the works of one painter; their interest for the public would certainly not be so great in that case; and in the present instance, though this collection contains many splendid works, one cannot avoid a feeling that it is possible to have too much of Rembrandt at one time. The element of beauty in his works is so small, for one thing; the only picture of a young woman which can be said to present any beauty is the half-length portrait of Saskia belonging to Mrs. Joseph; and that is rather beautiful relatively, and by comparison with his other female models, than in a positive sense. As a work of art it is however one of the most original, especially in regard to colour, of all the pictures in the collection. The most interesting and, in a sense the most beautiful, of the portraits of women are one or two of those of old ladies, into which Rembrandt infused a great element of dignity, as well as of character and expression in the features; among this class of paintings the "Portrait of an Old Lady" (45) belonging to the Queen, and the "Portrait of a Lady" (69) lent by Captain Holford, are pre-eminent; in the latter the face is really beautiful, as an old face, and must have belonged to a lady of high rank and position; it has none of the coarseness and

stolidity of the Dutch *bourgeoise* countenance, as it meets us too often in the portraits both of Rembrandt and Rubens. It was in painting men that Rembrandt was at his best; more especially elderly men. The well-known picture called "The Ship-builder and his Wife" (67), also lent by the Queen, is a notable example of this; nothing can be finer and more dignified than the face and general pose of the man, but his wife (if it be his wife) who enters with the letter, is a common *Hausfrau*, without attraction or manner of any kind. Rembrandt nowhere showed his power in painting more remarkably than in the pourtrayal of his own remarkable personality. Of these portraits of himself there are eleven in the exhibition; suggesting the conclusion that when sitters were scarce he fell back on his own figure simply as the readiest available model on which to found a picture. Of these the finest undoubtedly is that in Gallery I. (20) belonging to Lord Iveagh, the half length in a brown mantle and white cap, with palette and mahlstick; and equal in interest, though not quite so fine in artistic quality, is that tremendous and overpowering portrait, larger than life, belonging to the Earl of Ilchester, which now hangs (61) in a corner of the large gallery, where in a former Old Masters exhibition it occupied a central place. It is noticeable that this was painted in 1658, the year after the breaking up of his home and studio and the sale of his collections; as if he were determined, in spite of adversity, to show the world what a picture he could make from no resource but his own likeness, and exhibit his own figure as that of a man still strong and defiant in the midst of his calamity. The finer portrait in the first room —more balanced and complete in style and colour, was painted not very long after this colossal one, and seems still to show the same kind of purpose—the self-pourtrayal of a figure still strong against adverse fate. As a contrast to these one may notice the fine and *spirituel* portrait of himself as a young man, seated before a board on which he is drawing, and with an expression of eagerness and genius which render it one of the most attractive pictures in the collection. Among other paintings of men which are especially remarkable for power and artistic completeness is that grand one of "A Rabbi" (83) lent by the Duke of Devonshire; the original was possibly a commonplace old gentleman enough, as he appears in the other portrait of him (57) belonging to Viscount Powerscourt; but in the Duke of Devonshire's picture Rembrandt has contrived to impart to the head an intensity of expression which is as striking as the splendid and effective painting of the costume. The painting called "The Burgomaster Pancras and His Wife" (80), lent by the Queen, is (we are told in the catalogue) "now generally believed to represent the painter and his wife"; but in the absence of any documentary evidence we should regard this as very doubtful; the head of the man does not seem to accord much with either the older or the younger portraits which are undoubtedly those of Rembrandt.

Among the two or three subject pictures which are to be found in the collection, all from biblical subjects, the only one which touches the feelings is the small picture of "Isaac and Esau" (10), lent by the Duke of Devonshire; a picture which, like all Rembrandt's Bible pictures, is almost absurdly devoid of truth of historic character or costume; but nevertheless there is real pathos in the enfeebled figure of Isaac, and the effect of light is very fine. It is in his comparatively rare landscape pictures, however, that Rembrandt showed the poetic side of his nature. Of these the well-known picture of "The Mill" (40), belonging to Lord Lansdowne, is the most remarkable example in the collection—a perfect poem of evening effect. A less known but almost equally beautiful example is the small picture in the second gallery, "Shepherds Reposing at Night" (51), lent by the National Gallery of Ireland. In this painting the radiance thrown by the moon over the shoulder of the dark hill is a wonderful instance of the realisation of the effect of light by the medium of pigments.

The drawings in the Water-colour room are mostly very slight sketches and studies, not quite so interesting as we expected. Two studies of lions (159 and 184) are among the best things; and there is an interesting monochrome sketch (163) for the picture of "The Nativity" in the National Gallery.

The collection of Burne-Jones's work at the New Gallery is a very full and representative one, on which however we need not dwell in detail here, because nearly all the works have been exhibited before, some of them many times, and at the time of the painter's death we summed up our view of his art, which is not exactly the popular one. If we take the paintings and the drawings here, and the drawings at the Burlington Fine Arts Club, they form an extraordinary record of constant and conscientious labour in pursuit of an aim always steadily kept before him, that of making painting subservient to the expression of a poetic ideal. In our opinion his ideal was a somewhat narrow one, and the pictorial results, though always beautiful, somewhat monotonous; but an ideal it always was. The catalogue numbers commence with some of his early works on a small scale, and some of these—"Clerk Saunders" (1), "The Backgammon Players" (5), "Sidonia von Bork" (24), and others, are curious to contemplate now; they are so completely in the same style as Rossetti's small paintings of his early days, that it would be easy to take them for his. Some of them show also how careless he was in those days about the drawing of the figure; see the shoulders and arms of the girl in "St. Valentine's Morning" for instance (19). From the great number of small figure studies he has left, it is evident that the artist had long ago recognised his weakness in this respect, and worked hard to conquer the figure; but it may be questioned whether he ever quite achieved this in his larger paintings; the nudes in "Pygmalion and the Image," painted many years later than these small works, are not satisfying to the eye; and next to this is the "Marriage of Psyche" (133), painted in 1895 (or at least exhibited then) with figures some of them at least ten heads high.

The first room at the New Gallery contains "The Days of Creation" (39), and two of the most beautiful and poetic of his smaller works —"Love Disguised as Reason" (54) and "Pan and Psyche" (61). In the West Room, among other well-known works, we find the "Chant d'Amour" and "The Wine of Circe," the former to our thinking his finest work; attention should be drawn to what is often overlooked in this picture, the interest of the architectural background and the care with which it has been designed. There are also here the beautiful portrait of Mrs. Bonham (85), "The Hours" (93), the "Wheel of Fortune," a fine conception not altogether satisfactory in execution, "King Cophetua," "The Depths of the Sea," one of his finest works and for once showing a face which is not a mere repetition of a conventional type—one could hardly have thought that Burne-Jones, of all people, could have succeeded so well with the expression of malice and cunning in a female face; "The Mirror of Venus" and the "Golden Stairs," with its decorative lines and curiously false perspective, or absence of perspective. In the North Room are various pictures of the Perseus series, the "Tree of Forgiveness" (otherwise "Phyllis and Demophöon"), the "Fall of Lucifer," a picture of beautiful decorative effect though very weak as an illustration of the subject; and a large unfinished picture of "Arthur in Avalon," which is remarkable among other things for the original architectural detail. In this room too is the small picture of "Cupid and Pysche" (137), which is noteworthy for the beauty of the face of Psyche and the fact that it is far less conventional, more expressive of real human feeling, than most of his female heads, which are beautiful, but only beautiful dreams, with no human character in them. In the same room too is "The Dream of Launcelot," in which Burne-Jones's feminine weakness of conception is displayed in an almost exaggerated degree. How can any one look at such a weak figure as this, as a conception of a great fighting knight, and deny that Burne-Jones was deficient in masculine force in his style and conceptions? He seems to have himself felt the mistake in this case, for in the larger design of the same subject in the Stanmore Hall tapestry (224—in the Central Hall) he has altered this figure and endeavoured to give to Launcelot a more powerful and masculine physiognomy; but such an effort is so unusual—almost unique, with the painter, that we may suspect that in this case it was due rather to external prompting than to his own feeling.

The great picture sketched in outline, "Love's Wayfaring" (in the Central Hall), showing Cupid mounted aloft on a broad-wheeled car drawn by his victims, would have been a remarkable work if completed.

THE ARCHITECTURAL ASSOCIATION:

HOUSE-PLANNING FROM THE ÆSTHETIC POINT OF VIEW.

AN ordinary fortnightly meeting of the Architectural Association was held on Friday last week in the Meeting room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. G. H. Fellowes-Prynne, President, occupying the chair.

The minutes of the last meeting having been agreed to, the following gentlemen were elected members of the Association:—Messrs. F. Mount, H. G. Turner, and J. M. Lethbridge.

The Chairman announced that the classes on "Elementary Construction" would commence on the 16th inst. He also nominated Mr. H. W. Pratt to serve as a trustee of the "A. A. Travelling Studentship Fund," in place of the late Mr. E. C. Lee.

The nomination having been agreed to,

Mr. H. H. Statham read the following paper on "House Planning from the Æsthetic Point of View:"—

When Mr. Paul Waterhouse read his interesting paper on "Oriels and Bay Windows" before the Association a few weeks ago, he commenced it by praising the judgment and benevolence of the Council of the Association in themselves laying down or suggesting the subject to be treated, thereby setting the reader of the paper a definite task, saving him from the onus of making up his mind on a subject, and encouraging him to acquire some definite information on the subject he had been invited to treat of. And he implied that this was the course now usually pursued by the Association in asking for papers. If that is really the case, why have I been, so to speak, left out in the cold? No such benevolent and stimulating process of selection of a subject was exercised on my behalf. I was asked simply to read—"a paper"; the universe being left open to me for choice. The universe is doubtless a fine field, but a little embarrassing to select from. Under such conditions the only course is either to take a subject which you have for some reason or other been led to think about, or—to decline. I do not approve of what may be called "paper-making" for its own sake. If people tell you that they wish for your views on some particular subject, it is another matter. You may give them your views, even if the subject is one not specially interesting to yourself. Otherwise, on two or three occasions when other societies have been complimentary enough to ask me for a paper, I have felt compelled to say frankly that there was no subject on which at the moment I had any particular opinions or thoughts which I was anxious to give expression to; therefore I must decline. I recommend my own moral example to others who receive general invitations to read papers on any subject they please. It is a dangerous temptation, and tends to put papers in the same category as after-dinner speeches, where you speak not because you have got something to say, but because you have got to say something. In one of the finest verses in the Psalms we read—"While I was musing the fired burned; *then* spake I with my tongue": but not till then. If you have nothing to say, don't be persuaded to say it. And therefore, if the Council of the Association have, as I gathered, made it a general practice (though not applied in my own case) to specify the subject when inviting any one to read a paper, I recommend them to keep up that practice; only I would suggest that, after specifying the subject, a rider should be added —"unless there is any other subject which you specially wish to treat." By tying a man absolutely to one subject you may possibly be preventing him from dealing with another which he would treat better; and if he is willing to dispense with the assistance given by having a definite suggestion made to him, it is probably because the other subject is one that he really cares about.

So much for the general ethics of the paper-chase, which are worth a little consideration. In the present instance the request of the Council for a paper happened to reach me at a time when my mind was rather full of a subject on which I had wished, sooner or later, to say something; and therefore I could not do better than say it here, thereby complying with your request without falling into the sin of paper-manufacture.

Although the architecture of the House cannot, except in the case of such mansions as may be called palaces (which are necessarily somewhat rare), rise to the archi-

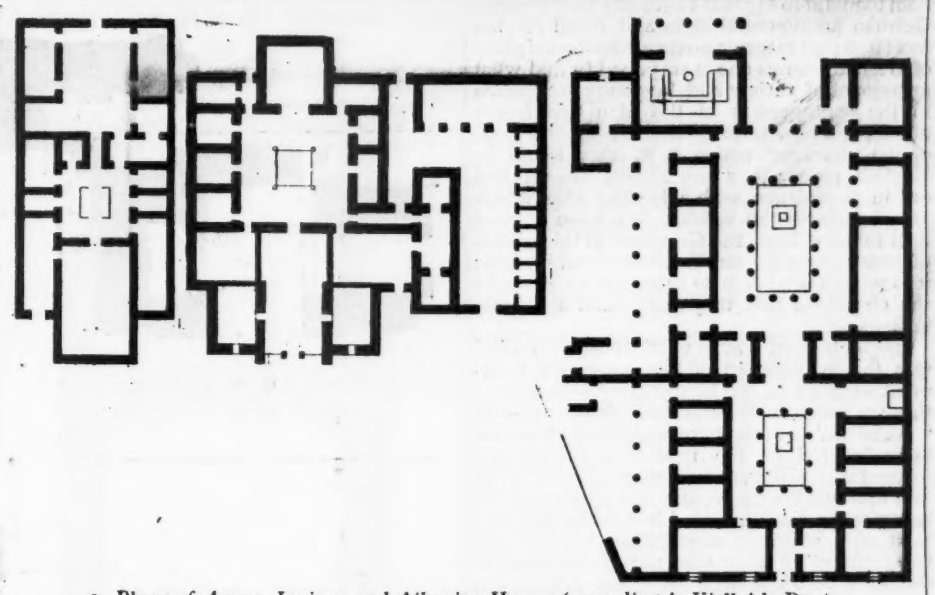
tectural grandeur of the temple or cathedral, yet there is no branch of architecture more fascinating in its interest. It is the most intimately connected of all with the lives and characters of men. In an architectural sense, the designing of a house is not merely the arrangement of rooms so as to be comfortable in themselves and commodious in their relation to one another, though these are points of the greatest practical importance. That is a merely utilitarian view of the problem. The object of architecture is to transfigure the house from a collection of rooms conveniently arranged, to raise it to the level of a distinct and individual architectural conception or idea which should govern the whole arrangement; to give it as much of interior effect as is compatible with its size and with the practical convenience of internal traffic; to make it something more than a mere dwelling-place; the expression of an artistic thought—whole, complete, and indivisible. Of course it will be said that we take a great deal of trouble to make houses architecturally expressive or picturesque. We have our pilasters, our window pediments, our balustrades, our broken cornices over the doors, and pots on the attics, and cut brick cherubs and garlands; or our gables and roofs cutting into each other in different directions and at different heights, our sham half timbered walls, and coloured rough-cast, and plaster devices and what-not; but all these will not save our souls; a house may have them or not have them, and be neither much the better nor much the worse in either case. The plan is that in which the artistic idea of the house is really embodied; that is the basis of the whole; if there is a good idea in the plan, even bad external detail cannot entirely spoil it; if there is no idea in the plan—nothing beyond a commonplace collocation of rooms in convenient positions, the best exterior detail will do little or nothing to conceal the poverty of the main conception. Of course in any case the treatment of the masses of the plan is half the problem; and as we shall have occasion to notice, there have been splendid plans which have not been made nearly as much of as they might have been in regard to exterior architectural effect; but it is mainly the plan which distinguishes the house which embodies an idea from that which does not.

Now in this respect among others, the mediæval revival, so vaunted at the time, has left an ill influence behind it. To take the ordinary scale of dwelling-house first; it is since the mediæval revival that we have been taught to regard the ordinary-sized dwelling-house plan as consisting merely of the fitting together of so many parallelograms of room-spaces, something like a puzzle map, the end of one abutting on the side of another, the angle of one projecting beyond the wall of another, so as to show where the rooms fit on to each other; the result being a plan that is no shape at all, and which cannot be walled and roofed in under the guise of any formal and distinct architectural conception. Take fig. 1, which is a tolerably typical specimen of this class of house plan; how can one call that an architectural conception? It is simply some rooms tacked together; it is devoid of internal effect, and externally it can only be treated as an irregular collocation of wall and roofs. This way of building is supposed to be "picturesque" and "truthful"; a house is a collection of rooms and it is to be treated so; it accords with the irregularity of Nature; and so on. A house is not called upon to accord with the irregularities of Nature, any more than a garden; it is an artificial creation and should be treated as such. If it is a mere collocation of rooms, that is the architect's fault; it ought to be something more; it ought to be a plan conceived as a whole, the rooms designed and placed so as to be subordinate to that governing idea while retaining convenience of internal position. That is just the *crux* of artistic house-planning; the mere irregular fitting of rooms together is an evasion of it. And if we look back at the history of the habitation, we find that after men had emerged from that primitive stage in which, as the soldier sings in "Philip van Artevelde"—

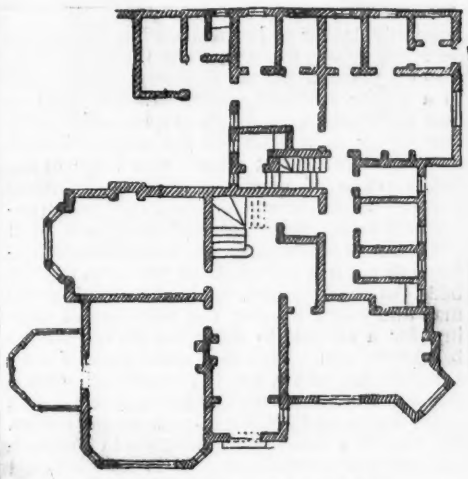
> "Two sticks and a mat
> Make a very good house,"

at a comparatively early period they arrived at the perception that a house should be planned on a centre line, and should have so much of interior architectural effect as space permitted. We may take, for convenience sake, three types as given by Viollet-le-Duc in his "History of the Habitation" (fig. 2); they must not perhaps be taken as quite archæologically accurate, for Viollet-le-Duc possessed imagination as well as industry, and (like other French archæologists) what he thought probable he treated as historic fact; but they are probably near enough to fact in their main characteristics. In the Aryan house on the banks of the Upper Indus a locality which has long been the accepted "cradle of the human race" (though Mr. Traill complains that "they are moving that bassinet about a good deal lately"), we see a plan drawn out on a centre line, and with the large outer court and inner hall for family life, which is the precursor of the *atrium* of the Roman house, probably through the *'αίθριον* or open-air hall of the Greek house. In the Ionian house we have the same centralised system, but the inner rooms have increased in importance; and it is curious to notice on one side what would now be called the "stable wing," much as we see it placed in some of the English eighteenth century mansions. Then we have the Greek house in which the inner colonnaded hall has become the principal feature, and provides a really fine piece of interior architectural effect in a house of moderate dimensions, and which we find reproduced more or less in the Pompeian house. We cannot in this climate have the open-air colonnaded apartment in the centre, though we can have something like it in the disposition of apartments; but at all events this is a far more artistic conception in house-planning than fig. 1.

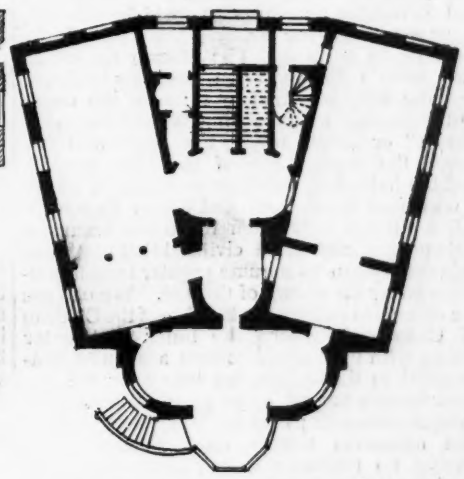
I am not arguing necessarily in favour of bi-lateral symmetry in the average-sized house, though I am inclined to say that in the majority of cases bi-lateral symmetry in the main masses at least (with diversity in some of the details) will produce the best architectural result, more especially in the case of a house which is combined with a garden. We have all learned to recognise of late years the beauty and suitability of the formal garden, differentiating the garden, as a work of art, from the informal lines of nature; and the formal garden will only go well with the formal house. But apart from the bi-lateral question, at all events we ought to see the house modelled on a distinctly conceived and predominating design which moulds the whole of it; not merely put together as the rooms may fit conveniently. The attempt to do this, as it appears to me, is not often made among us. Occasionally we see such a thoroughly original conception as that house by Mr. Prior, of which the model was exhibited two or three years ago at the Academy. A small house by Mr. Townsend* is noteworthy as an example of a plan and architectural treament which form a complete and original conception; so is the plan of a house by Mr. Horsley,† with its entertaining rooms and gallery *en suite* on the garden front, forming a much more dignified architectural interior than is generally attained in a house on this scale; and other examples will probably occur to some of my hearers. But in the attempt to give special character and unity of conception and design to houses of average size, both the Americans and the Germans are a good deal in advance of us.



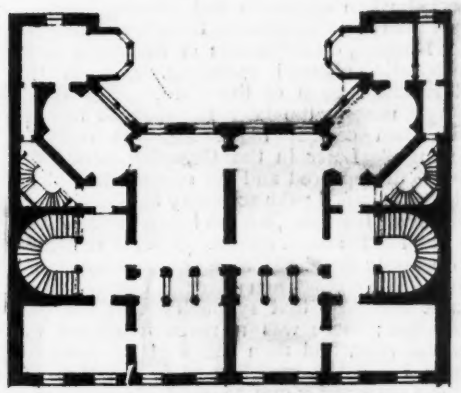
2. *Plans of Aryan, Ionian, and Athenian Houses (according to Viollet-le-Duc).*



1. *An Average Modern English Plan.*



3. *House at Frankfort (no Scale).*



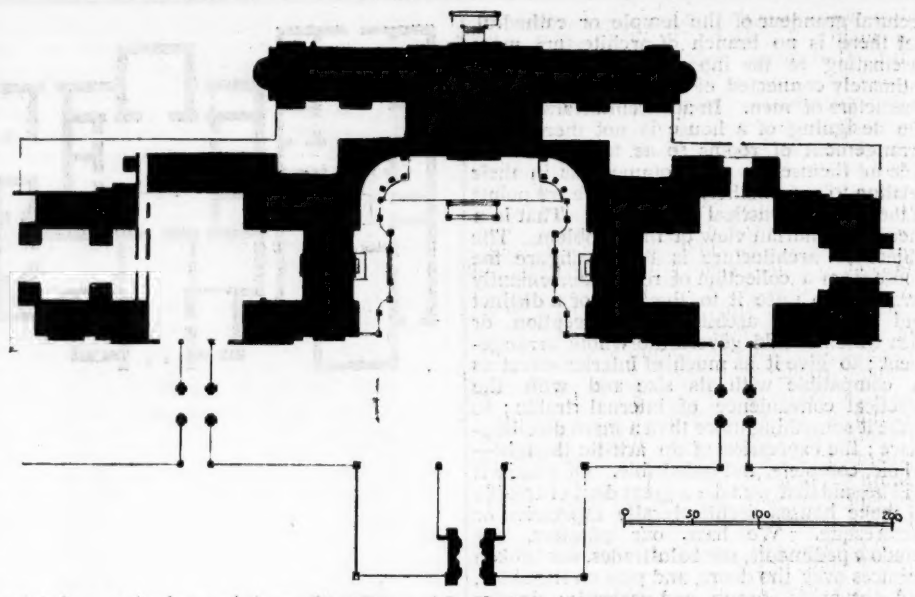
4. *Apartment House, Cologne (no Scale).*

* Published in the *Builder* of October 15, 1898.
† *Builder*, November 5, 1898.

I am thankful to say that I cordially hate modern German architectural style and detail for the most part; but in turning over a collection of plans of German houses one is surprised to find what an amount of variety and ingenuity are shown in the arrangement of the plan (see figs. 3 and 4), and how little of the ragged and accidental character which is so often found in English plans; they are almost always laid out in accordance with a leading idea which gives unity to the whole. We have a good deal to learn from the Germans in this matter of house-planning on an architectural system; it is when they begin to raise and to decorate the elevations that they make such a terrible business of it.

But let us turn now to what in my own mind was the main object of this paper, the treatment of plan in the largest class of houses—those which can be dignified by the name of "mansions.' It is here especially that the taste fostered by the mediæval revival has injured us. The mediæval mansion was in the first instance the castle, and the castle and the habitable portions included in it were naturally built with what we now call a "picturesque irregularity"; which was not picturesque in the eyes of those who built the castles, but simply utilitarian. Castles were usually, or one might say always, built in as commanding and as isolated a position as could be selected, to secure them the better against attack by force or by surprise. The plateau on which they were built was often irregular in shape, and the most was made of it; after the castle had expanded to something beyond the mere "keep" or single tower, the outer wall followed the natural line of the high ground, and the habitable buildings were got in where it was most convenient and where they were safest. It was only when the times became a little quieter and more civilised that castles or châteaux began to assume regular forms uninfluenced by the nature of the site. We can see the change in progress in the plan of the Château of Chambord, where the inner and outer blocks with their angle towers are quite symmetrical in disposition, but internally the circular towers are cut up by partitions in a quite irregular manner; they are still purely military and utilitarian towers, their circular shape having no reference to any object but their engineering suitability as angle defences. With the commencement of the Renaissance period, when architects had become familiarised with the symmetrical temple buildings of the Romans, came the age of the great symmetrically-planned mansions, first in the Elizabethan form of the courtyard or quadrangle, next in the later Renaissance form of the main central block and the outlying "wings." Later in the Georgian period the wings disappeared and the symmetrical block alone remained; the accessory buildings, such as stables, laundries, &c., no longer forming any portion of the main design, but being relegated to separate buildings at more or less distance from the house. Then after the Gothic revival came the idea that symmetry was not picturesque; there was a reaction against the formal plan, and then followed the taste for what I call the rambling plan, in which the object apparently was to make it appear as if the plan had grown up by accident, or had arisen from the gradual enlargement of the house by successive additions. This habit of deliberately planning a house to look accidental and picturesque is, like the twisting walks and quasi-natural plantations of the landscape gardener, an entirely modern invention. For houses of the largest class there is no precedent for it in any previous age. The irregular castellated dwellings of the mediæval period, as already observed, were irregular for merely utilitarian reasons—to suit the site and make the most of it. There are various old houses in the country which have arrived at picturesque irregularity by dint of successive additions and alterations, but I think there are few if any that were deliberately built so, without anything in the nature of the ground to suggest such a treatment. It is a modern fancy engendered by the mediæval revival, and so far as it has been adopted it has robbed us of the finest and most impressive architectural qualities which are possible in a great mansion.

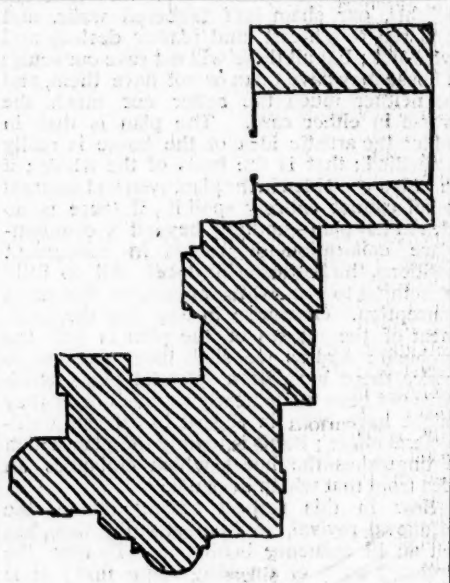
Those who were present at Mr. Aston Webb's charming little lecture to the Class of Design at the beginning of the session will not have forgotten his remarks on the advisability of having a little mystery or surprise in the planning of a house; inasmuch as the hos



5. *Block Plan of Castle Howard (Vanbrugh).*

generally rather enjoyed showing his guests over the house, there was not the same occasion for plain and direct planning as there was in a public building where strangers had to find their own way about. I quite agree with that as far as it refers to the averaged-sized dwelling-house. But where you come to the largest class of mansion, mystery-planning may become an inconvenience rather than an enjoyment to the guest. Your host may give himself the pleasure of escorting you from the smoking-room through a labyrinth of passages to your bedroom door at night, but in the morning you may find yourself under the necessity of ringing for a servant to show you the way to the breakfast-room. This is a mere point of convenience, not of art, but it is worth consideration. It is a nuisance to be losing yourself in a great house, and getting into the wrong rooms. But this is a minor consideration in comparison with the æsthetic one. It is often urged, I know, that the rambling and irregular house is the more homelike. But it is forgotten that a mansion on the largest scale may (I say, should) aim at something more than homeliness. It is to some extent a house of state; it should aim at the qualities of stateliness and dignity. And it is here that the great charm of house architecture comes in. Here there is the opportunity of combining architectural dignity with novelty and originality of grouping; the interest of arranging and shaping rooms so as to combine architectural effect with convenience. There are no by-laws or requirements of public bodies to hamper the architect; if his client is wealthy and really wants a fine and impressive house, the architect has the opportunity of evolving and shaping a new and original architectural creation which may be of the highest order, and imparting to it the dignity and symmetry which should belong to an architectural design thoroughly thought out and modelled. To adopt the rambling plan is to throw away a great deal of this opportunity. The rambling plan is not shaped at all, it is merely thrown together; it is supposed to afford a basis of picturesque effect, which really means a crowding together of different blocks of building, with a tower at some corner where you do not expect it, without any real design at all. The picturesque, in that sense, is not a difficult business; but what has become of the dignity which should belong to the great house of the neighbourhood? "The stately homes of England," as they are called in some popular ballad, are stately no longer. Compare, for example, the block plan of Castle Howard (fig. 5) with that of one of the rambling plans (fig. 6); the one is obviously the foundation for a dignified and grandiose mansion; the other may have character but it can have no grandeur; it is a shapeless plan destitute of any leading idea.

It is worth while to endeavour to realise what was the ideal mansion of the great philosopher of the Elizabethan era, when he published, towards the latter end of Elizabeth's reign, his famous Essays, including the one "On Building." In Bacon's time the courtyard or quadrangle system of planning was still in favour, and he requires no less than three courtyards before you get to



6. *Block Plan of "Rambling" House (no Scale).*

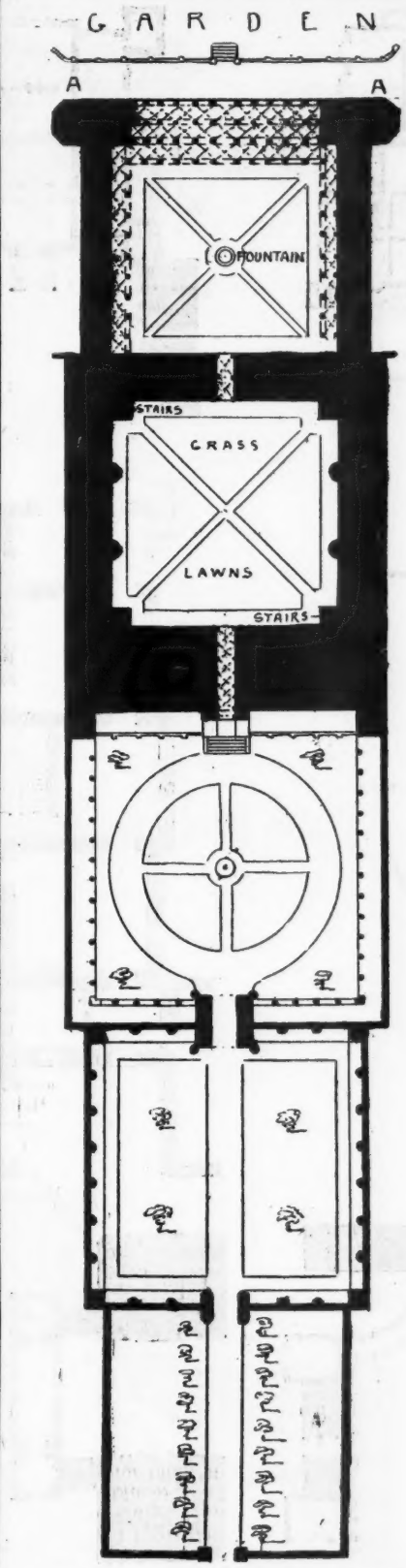
the house, an arrangement which I should think has never been carried out in actual building, unless it were a Babylonian palace or an Egyptian temple. The three courts are to form a kind of *crescendo* for the state approach to the house (see fig. 7); first "a green court with a wall about it; next a court of the same, but more garnished with little turrets, or rather embellishments on the wall; and a third court to make a square with the front" (the front of the mansion to form one side of it), "but not to be built nor yet enclosed with a naked wall, but enclosed with terraces leaded aloft . . . and cloistered on the inside with pillars, and not with arches below." The last words are rather obscure. I think there ought to be a comma after "arches," and that he merely means that he wishes the cloister to be a colonnade and not an arcade: an indication of the Renaissance taste for columns which was just then beginning to reach England. This is the only indication of style in architectural detail that can be extracted from the description. When we come to the house itself, the front is to have on one side a great banqueting hall 40 ft. high "for feasts and triumphs;" this is to be "above stairs" (*i.e.*, it is to be raised on a lofty basement story), with a room for preparation under it. The other side of the house is to be in two stories, the main one divided into a hall and a chapel, and "at the farther end a winter and summer parlour;" this looks as if one parlour was to face to the front and the other to the inner quadrangle, that on the sunny side being of course the winter parlour; in that case "the farther end" means the end farthest from the centre axis of the building. The two sides of the front are to be "uniform without, though severally partitioned within," a principle which was destined to be only too well carried out in many an English

house of the following two centuries. Beyond this front is then to be a fair court "(quadrangle)" but three sides of it a lower building than the front; the return on the banquet side to be all stately galleries, with three or five cupolas in the length of it; the other side to be ordinary presence chambers and some bed-rooms; but all three sides to be "a double house without through lights on the sides, that you may have rooms from the sun both for forenoon and afternoon." This is rather lightly said, and could surely have hardly applied to the side with the "stately galleries." As to communication, probably Bacon counted on all these rooms opening out of each other, as they do all round in such mansions as Burleigh House and others, and even with the greater part of Hampton Court, which is of course a good deal later. Four staircases were to be placed in turrets projecting into the court at the re-entering angles. Embowed windows have their advantages; "they be pretty retiring places for conference; and besides they keep both the wind and the sun off, for that which would strike almost through the room doth scarce pass the window. But let them be few; four in the court, and on the sides only." He probably means two on each of the return wings; the front wing could not have one, as the centre entry to the quadrangle would be in the way. The quadrangle is not to be paved, "for that striketh up a great heat in summer and cold in winter"; only with paved side and cross walks, and the four spaces laid out in grass. Beyond this court is to be another of the same size and height, which (outside) is to be environed with the garden on all sides, and on the inside, "cloistered on all sides upon decent and beautiful arches, as high as the first story." This cloister apparently is to be an arcaded one. "On the under side, towards the garden, it is to be turned into a place of shade, and only have windows towards the garden"—*i.e.*, on the outer side of the buildings. Then, after a reference to the arrangement of the rooms on the fourth or farther side, he adds that here there is to be "on the ground story a fair gallery open, upon pillars." This description forms a curious coincidence with the actual arrangement of the Second Court of Trinity College, Cambridge, where there is an arcaded cloister on three sides, and an entirely open space on the fourth side, with piers to carry the library above. Bacon adds that the third story, on this farther side, is also to be "an open gallery on pillars, to take the air and freshness of the garden." In this upper gallery there were to be fountains running from the walls. One further detail: "At both corners of the farther side, by way of return, let there be two delicate or rich cabinets, daintily paved, richly hanged, glazed with crystalline glass, and a rich cupola in the midst." I confess I cannot make out exactly where these "delicate cabinets" were to be placed; but considering that they are called "returns," perhaps we may be right in assuming them as occupying the positions A, A.

Such is Bacon's idea of a great mansion on the quadrangle principle of plan. It would not be a bad study for the Academy or the Institute to set as the subject of one of their prizes—the Travelling Studentship or the Soane Medallion—to restore Bacon's mansion in plan, section and elevation. Bacon, it may be observed, deals only with the superior portions of the mansion: "as for offices," he says, "let them stand at a distance, with some low galleries to pass from them to the palace itself." This is really much the way they were placed by Vanbrugh at Seaton Delaval,* only that Vanbrugh had them flanking the front or entrance courtyard of the house; masked by the colonnades, it is true, but still pretty well in evidence; whereas I think Bacon wanted them out of the way of notice altogether. "Offices" probably did not with him include the kitchens, as he rather implies, in the course of his essay, that these would be in the basement of the main building.

The quadrangle system of plan is no doubt one of the best for combining a considerable degree of architectural effect with a certain degree of retirement and domestic feeling. It is not the most effective for an exterior view, as in most cases one only gets the architectural impression of the front; nor is it the most wholesome form of plan in a sanitary sense. The E plan, with or without the centre shank to the E, gets over two of these objections, and especially with a low screen or colonnade

* See the plan published in the *Builder* of April 22, 1893.



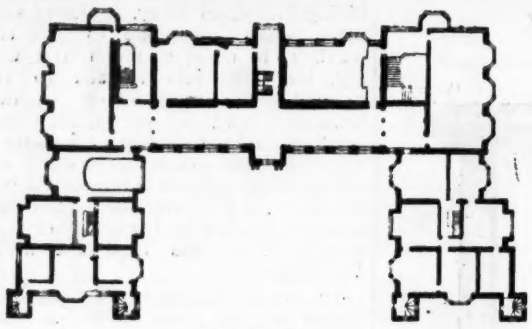
7. Sketch Plan of Bacon's House (no Scale).

across the fourth side, is highly effective architecturally; but it introduces the new objection, for internal convenience, that each end of the returns is a *cul-de-sac*. Hatfield (fig. 8) is a good example, and contains also a fine interior point in the long and wide gallery running from end to end of the principal mass and connecting the two largest rooms, with the added dignity of a colonnaded screen at each end. As a contrast to this grandiose arrangement, it is curious to observe that in one wing the only means of reaching the bedrooms is through the gallery of the chapel; though this may be defended as a pious arrangement to induce the guests to say their prayers before going to bed. Before long, however, the quadrangle plan was destined to give way almost entirely before the favourite scheme of the later Renaissance, that of the centre block and wings, and as a system of house-planning on a great scale nothing so grandiose has ever been devised. Vanbrugh, though he did not actually invent it, was the great high priest of this movement, the leading motive of which was, instead of hiding the offices away, as Bacon suggests, to make them contribute to the show. If we have to cover so much land with building, the architects seemed to think, let us make the most of it in the architectural result; let our stable wing on the one hand and our kitchen or laundry wing on the other serve to extend the effect and act as architectural supports to the central mass. Mr. Blomfield, in his admirable book on the English Renaissance, quotes the words of Reynolds in admiration of this treatment as used by Vanbrugh:—

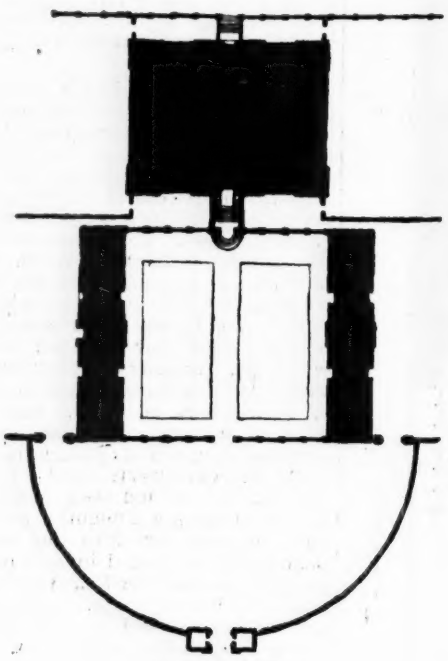
> "To support his principal object he produced his second or third groups or masses; he perfectly understood in his art what is the most difficult in ours, the conduct of the background . . . and no architect took greater care than he did that his work should not appear crude and hard, that is, it should not abruptly start out of the ground without preparation."

In fact, Vanbrugh had a great deal of the feeling of those who have been called sculptor-architects. Observe, in the case of Castle Howard (fig. 5), how the lines of the balustrade fence on each side of the courtyard are as it were, *modelled* in and out in breaks and curves, to escape what Reynold's calls the "hardness" of straight lines. This same modelling of wall lines is a point also with Wren, as is shown, *inter alia*, in the admirably designed plan of the boundary walls between the street and the courtyard of the old Trinity almshouses, which we have lately just managed to save, and of which Mr. Thackeray Turner remarked with truth that those walls alone were enough to indicate the hand of Wren. Vanbrugh's great work is of course, Blenheim, a plan of the grandest type, with its great terraced and cloistered forecourt 350 ft. long by 300 ft. wide, and the kitchen and stable courts, each (with their surrounding buildings) about 250 ft. by 200 ft., opening from it to right and left. The plan is absolutely axial in both directions, two great longitudinal corridors running in parallel lines from wing to wing. Among other points it may be observed that the use of internal courts to light the corridors, which is sometimes regarded as a very modern expedient, is used here for the principal corridor at all events. The quadrant treatment connecting the wings with the centre is another example of Vanbrugh's modelling. The use of quadrant corridors to connect the house with the separate out-buildings became a constant feature of the later Renaissance plans; in this case it is not a corridor, but a portion of the main building treated in this shape; it looks very fine in effect, but there is always this objection, that it involves the existence of odd-shaped triangular rooms in its rear. At Blenheim these irregular spaces are utilised as dressing-rooms in connexion with rectangular bedrooms. It is one defect in the plan that the extreme right wing is one great gallery (180 ft. long), and the corresponding left wing is divided up into rooms, though the exterior architectural treatment is identical in both cases. The great gallery should certainly have been a special feature; that is one of the pitfalls of absolute symmetry. Vanbrugh has been laughed at, too, for having made the chapel and the kitchen balance each in the angles of the outlying blocks, but this is not so illogical as it is said to be. Man was philosophically regarded in those days as a being composed of two elements, body and soul, neither of which could in this world exist apart from the other. The needs of the soul were provided for in the chapel on one side, and those of the body in the kitchen on the other side; both were equally necessary to a complete mundane existence, and Vanbrugh treated them accordingly, with architectural correctness.* The principal defect of Blenheim in an architectural sense is the want of a grand staircase appropriate to the general grandeur of the plan. The main staircases, in two side halls on each side of the great hall, are convenient enough, but these halls are only 11 ft. wide, leaving only about 5 ft. for the width of each flight; a miserable proportion for so great a house. At Castle Howard the staircases are planned in just the same way and of the same size. The staircase alone, in these plans, seems to be treated in a purely utilitarian manner; regarded as a means of ascent only. The architectural glory of a great staircase does not seem to have dawned on the mind of Vanbrugh.

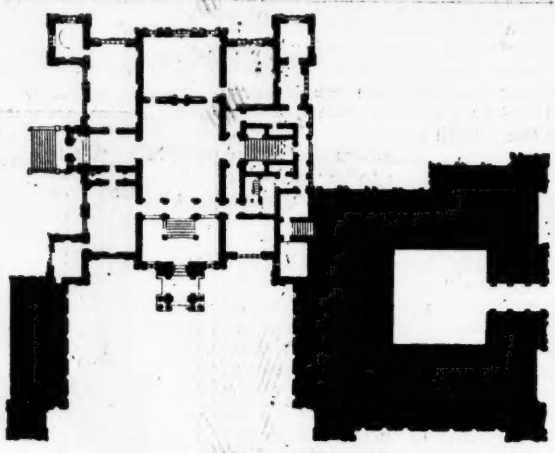
* The symmetrical treatment of chapel and kitchen occurs in other plans in the "Vitruvius Britannicus"; it is not confined to Vanbrugh.



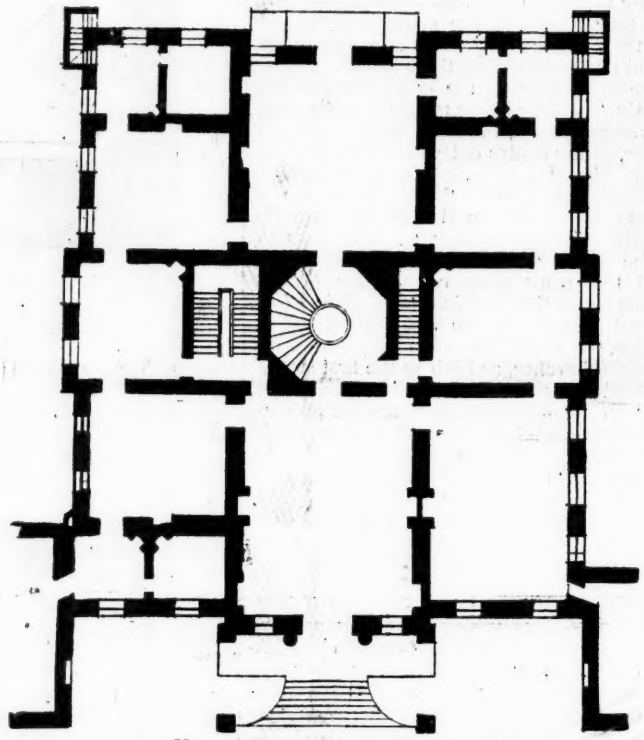
8. Hatfield House.



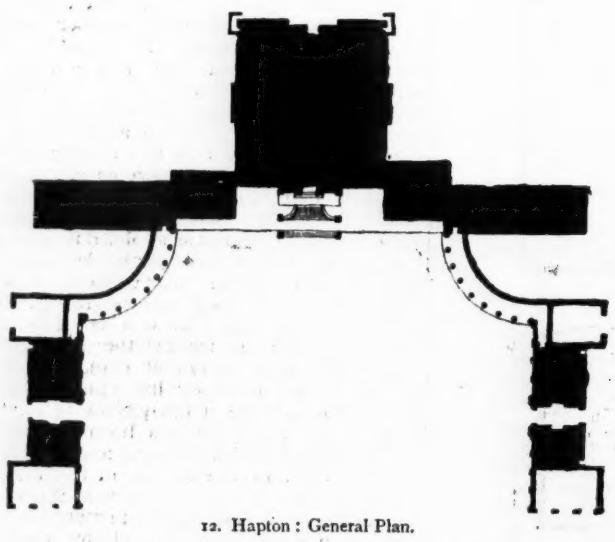
10. Euston Hall.



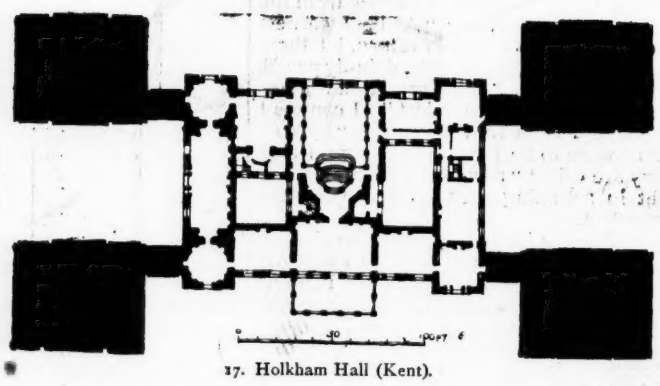
11. Mentmore (Paxton).



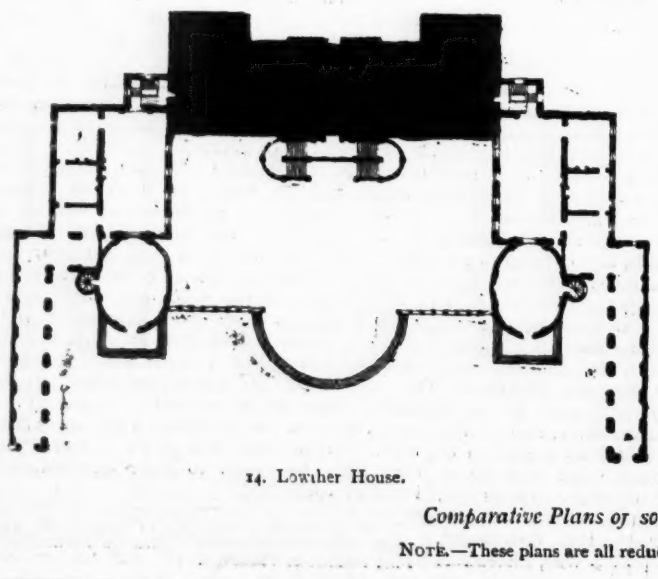
13. Hapton: Plan of Centre Block, enlarged.



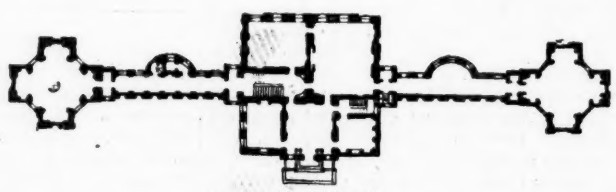
12. Hapton: General Plan.



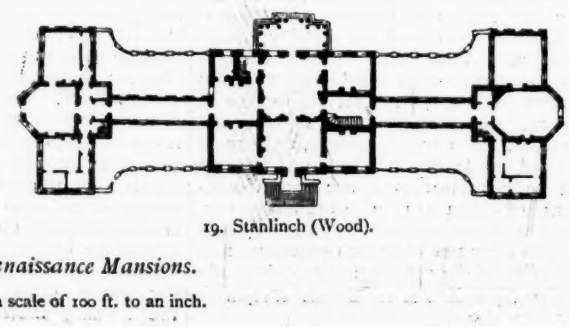
17. Holkham Hall (Kent).



14. Lowther House.



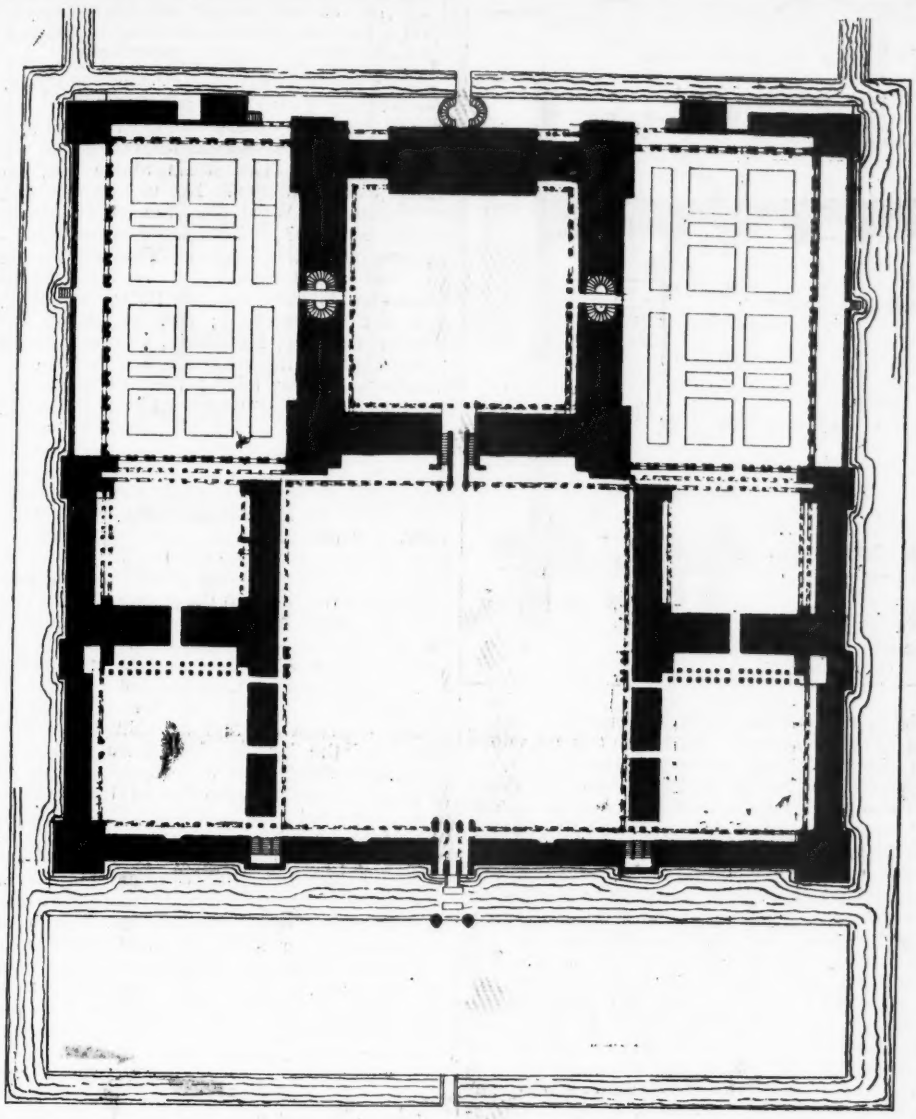
18. Buckland (Wood).



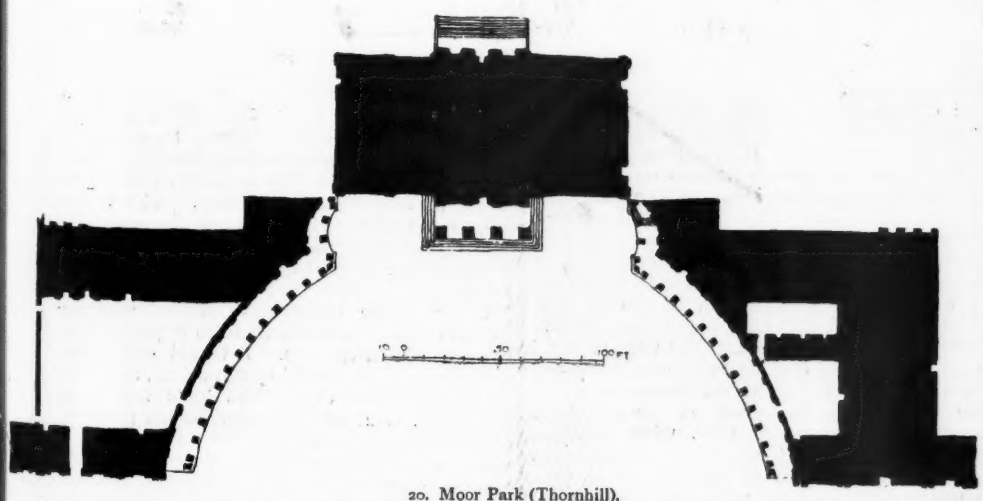
19. Stanlinch (Wood).

Comparative Plans of some Renaissance Mansions.

NOTE.—These plans are all reduced to a scale of 100 ft. to an inch.



9. Charleval (from du Cerceau: no Scale).



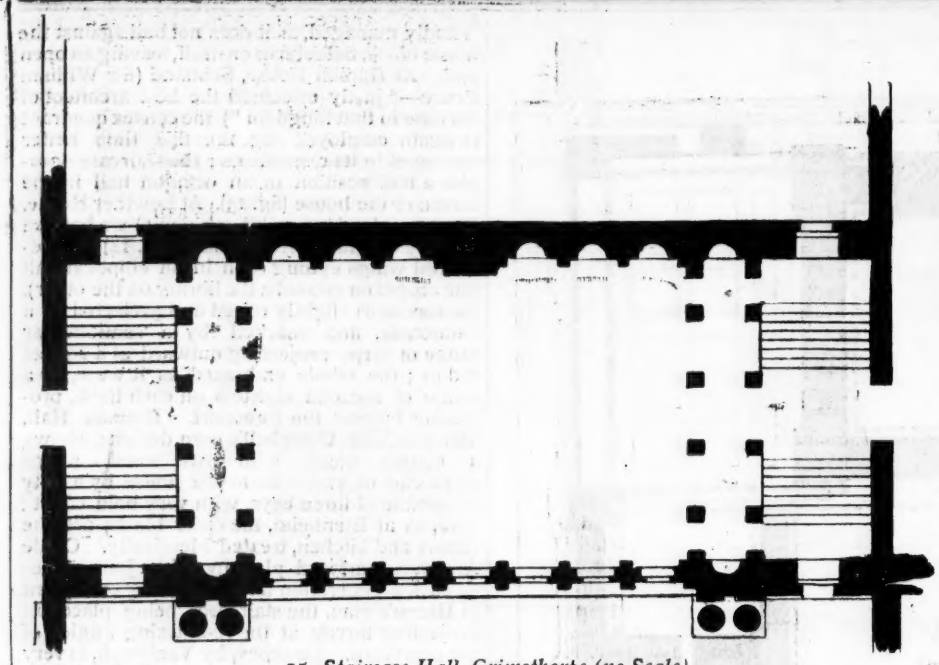
20. Moor Park (Thornhill).

Comparative Plans of Some Renaissance Mansions.

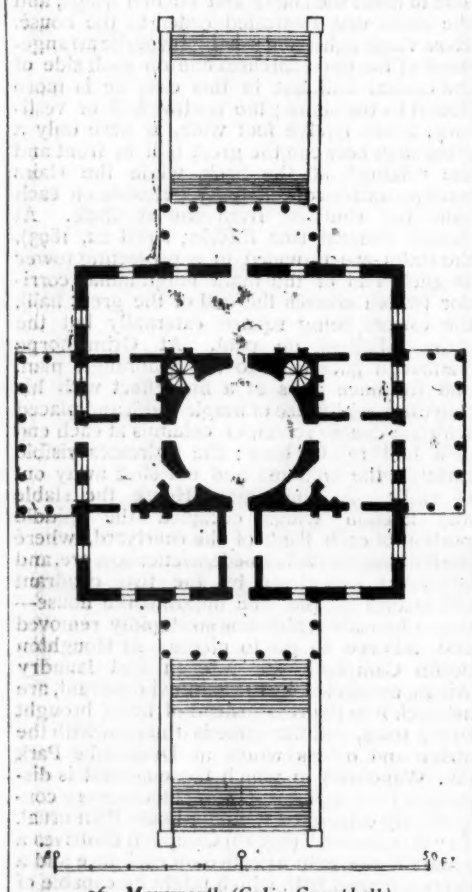
We may compare with Blenheim the magnificent plan of Charleval given by Du Cerceau (fig. 9), which, with its series of colonnaded courts, the great one in the centre and smaller ones on each side, the great square central block flanked by gardens, and the surrounding canals, is really sublime, and seems more like a castle in the air or a château on paper than a design seriously intended for execution.* Across the canal at the back is a great formal garden as large as the whole of the rest of the plan. Turning to the less magnificent but most interesting and varied English Renaissance plans collected in the "Vitruvius Britannicus," we find all kinds of variations played on the idea of outstanding wings connected with the centre by colonnaded quadrants. At Rowhampton House, by Archer, the quadrants are convex, and the front walls of the forecourt show that same kind of modelling in curves which seems to come naturally from Wren's pupil. In the plan of Eaton Hall (fig. 10), the general square lines of Seaton Delaval predominate, the stables and other offices flanking the courtyard without even being masked by arcades; but the great semi-circular sweep of the wall of the outer court is fine. At Beaconsfield (Millner), where the concave quadrant is again employed, the stable openings are round on the outer side, not towards the courtyard. In that remarkably stately modern plan, Mentmore (fig. 11), we see how in like manner the kitchen wing fronts away from the house, and the back walls of kitchen and conservatory blocks, facing each other at each side of the forecourt, are made use of as decorative screens with niches for sculpture, so that they form part of the architectural pomp of the entrance. The quadrant connexion at Beacon: field is badly managed, as it does not butt against the house block, but returns on itself, leaving an open end. At Hapton House, Scotland (Sir William Bruce—"justly esteemed the best architect of his time in that kingdom"), the convex quadrant is again employed (fig. 12), this time better managed in its connexions; the staircase occupies a fine position in an octagon hall in the centre of the house (fig. 13). At Lowther House, Westmoreland (no architect's name) we have an entirely original arrangement (fig. 14), the advanced wings ending each in an elliptical hall (the chapel on one side, the library on the other), the forecourt slightly raised and protected by a balustrade, and reached by a semicircular range of steps projecting outward at a 40-feet radius; the whole embraced, as it were, by a range of arcaded cloisters on each flank, projecting beyond the forecourt. Braman Hall, one of Colin Campbell's own designs, shows a square block with two small wings connected on each side to the house by a lofty colonnade of three bays, with very bold effect; here, as at Blenheim, the outer blocks are the chapel and kitchen, treated identically. Castle Ashby, a courtyard plan by Inigo Jones, takes us back a generation and illustrates one point in Bacon's plan, the staircases being placed in projecting turrets at the re-entering angles of the courtyard. Eastbury, by Vanbrugh, is very much on the same lines as Seaton Delaval, with the square forecourt with arcades down each side to mask the stable and kitchen wings, and the same vast rusticated order to the house. Here Vanbrugh again uses his favourite arrangement of the two staircases one on each side of the central hall, but in this case he is more liberal to the stairs; the central hall or vestibule, about twelve feet wide, is here only a connexion between the great hall in front and the "Salon" at the back, while the stairs have an ample space twenty feet wide on each side, but shut off from the vestibule. At Seaton Delaval (see *Builder*, April 22, 1893), the stairs are provided in a projecting tower at each end of the main longitudinal corridor (which crosses the end of the great hall), the towers being square externally but the stairs elliptical on plan. At Grimsthorpe Vanburgh goes back to the quadrangle plan, and for once aims at a fine effect with his staircases, which are of ample width and placed within a double screen of columns at each end of a hall 125 ft. long; the staircases visible through the columns and not shut away out of sight. At Burlington House the stable and kitchen wings occupied the middle portion of each flank of the courtyard, where the buildings of the learned societies now are, and the court was closed by the two quadrant colonnades at the end opposite the house—that colonnade which was so stupidly removed and allowed to go to pieces. At Houghton (Colin Campbell) the kitchen and laundry wings, connected by the habitual quadrant, are set back into the rear instead of being brought to the front, and the same is the case with the stable and offices wings at Duncombe Park (W. Wakefield) in which the quadrant is dispensed with, and the outlying blocks more conveniently connected with the house than usual. In "Mereworth" (fig. 16) Campbell contrives a square house with a portico on each face and a central domed hall, which might be capable of charming treatment; unfortunately he has found nothing better to do with his staircases than to make them corkscrews in the piers of the dome; a very mean treatment for a house of this class.

The plan of Kedlestone (as shown on paper) with its outlying pavilions connected by quadrants, is well known, it has been in so many books; it is a kind of plan which looks more effective on paper than it ever can look in reality, as you can never see it all at once; moreover the quadrants are badly managed; instead of butting on to the wings they terminate in a blank end and you have to make a right-angled turn to enter the wings. The treatment of the centre block of the house, with its great columned hall leading into the square salon and thence to the garden steps, is really fine; on the other hand, the staircase is ignominiously packed out of sight in a side recess. The quadrants at Kedlestone, it may be observed, are closed and with windows; not colonnaded. At Nostel (Paine) the same idea is better carried out, though the interior plan of the house is very commonplace compared with Kedlestone. At Nostel we find a recognition of one of the drawbacks to the use of the colonnaded quadrant; the colonnade looked very pretty in itself, but the servants

* There is a small building of church-like plan in the centre of each of the two smallest courts, which was duly drawn in my copy of the plan, but which the engravers, through some oversight, have omitted; an omission which spoils the point of the plan very much.—H. H. S.



15. *Staircase Hall, Grimsthorpe (no Scale).*



16. *Mereworth (Colin Campbell).*

passed visibly to and fro along it, which must have looked out of place sometimes. So at Nostel the quadrant consists of a walled passage for the traffic, with the colonnade in front and concentric with it for effect; thus making the best of both worlds. The same contrivance was carried out at Fonthill and in some others of the houses of this type. At Holkham Hall (by Kent) the pavilions at the angles are rectangular (fig. 17) and more closely connected with the house, but the main idea is the same as at Kedlestone. The treatment of the staircase at the end of the hall, with its wide lower flight of steps, is more dignified and stately than in most of these examples. A remarkable plan, standing quite alone in character, is that of Buckland, by Wood, of Bath (fig. 18). It has, indeed, more of the character of a kind of State villa than a mansion, but it is a very fine plan for internal effect. In this case the two end octagons are the chapel and the library, representing architecturally, shall we say, the soul and the intellect; the body is cared for in the basements under them, which are respectively wine and beer cellars, like Mr. Sherrick's vaults under Lady Whittlesea's chapel, in "The Newcomes." Stanlinch (fig. 19), which is also by Wood, shows somewhat the same general idea, but the arrangement of the doors in the central portion of the house is such as to lose the vista from end to end; this was probably intentional, as the right hand wing is a very spaciously planned bedroom suite, and privacy of aproach to it would probably be consulted. In the left hand wing is the principal room — the dining-room; in this less religious plan the chapel is wanting. The staircase, unfortunately, is very poorly treated. Lastly, Moor Park (Thornhill) is a remarkable example of a stately approach, in which the quadrant colonnades, instead of being merely connexions with the wings, are extended so as to form a mask to them entirely (fig. 20), leaving the planning behind them rather inconvenient, but the fine effect in front may be said to atone for this. The idea was probably suggested by Bernini's colonnades at St. Peter's.

There are few things, to my mind, more fascinating than the study of this collection of plans, so full of fine suggestions of effect, so uniformly stately and dignified in their variety; one cannot help thinking, again and again, what one could do with them in actual architectural treatment. It is true that our enthusiasm, in a sense, is damped on turning to the elevations, except those of Vanbrugh and one or two others. The mechanical manner of the engraving and shading does not assist them; but apart from that, one cannot help wondering that men who had such fine ideas of the basis of architectural design in plan, should have had such tame and formal ideas of their decorative treatment. But what of that? That only shows that there is something left for us to do. Now that we have shaken off the deadening influence of architectural scholasticism and red tape, what splendid things we could do (couldn't we?) if we could only get the chance of treating some such mansion plans as these with the freedom and the richness of detail which we could impart to their treatment in the present. Surely we could make something finer of this type of plan than of the irregular and so-called "picturesque" plan?

But then there is the question of convenience—a question which will not be shirked. Mr. Blomfield remarks on this head:—

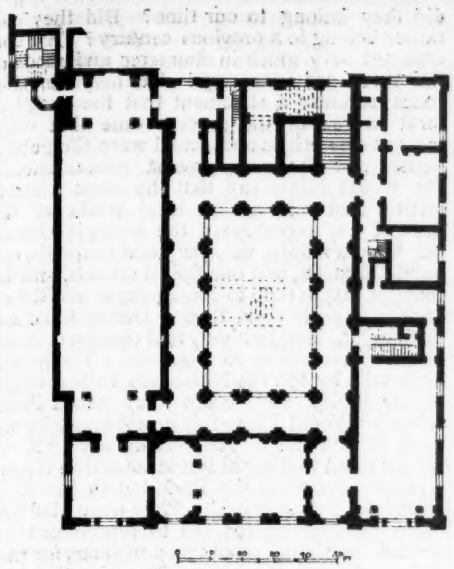
> "It is, of course, necessary to isolate the kitchen and servants' quarters from the big rooms of a house, but such a total disregard of convenience and economy as is shown in these eighteenth-century plans would not be tolerated for an instant in modern house planning. The point of view has shifted."

True enough; but has it not shifted a little too far? Let us continue Mr. Blomfield's sentence:—

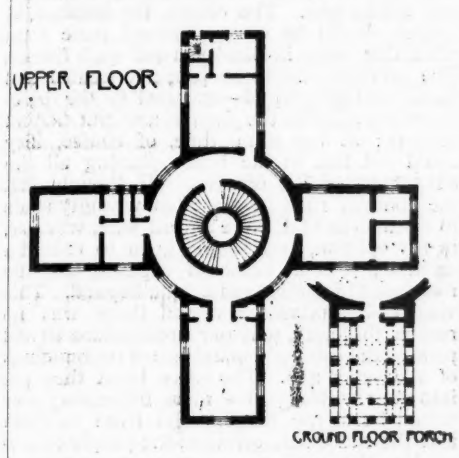
> "Vanbrugh and his successors were permitted to subordinate the comfort of the house to its external architecture. They began from without and worked inwards; the entire design was handled with a view to the realisation of a certain composition, without regard to convenience of arrangement; and the consequence is that there is always a distinct architectonic conception running through the whole of any one of their designs, which is necessarily absent in the heterogeneous assemblage of buildings which compose most modern country houses."

I think the latter half of Mr. Blomfield's paragraph rather gives away the first half. "A distinct architectonic conception"! Is not that worth sacrificing something for, unless we are to return to the "two sticks and a mat," in principle at all events? Let us consider that for a moment. What does the inconvenience really amount to? It lies mainly in one point—the position of the kitchen. That is what you will find again and again in architectural books—the kitchen was 100 ft., 150 ft., 200 ft., from the dining-room; &c. Even in the modern example, Mentmore, before referred to, the distance from the kitchen door to the dining-room door, taking the line along the passages, is 147 ft. (I measured it on the plan). One could hardly in such case say with Milton (referring to the meal in Paradise), "no fear lest dinner cool." That is a real inconvenience; but there is no occasion to revive that. In these days of lifts the kitchen might be in the basement, or it may even be in the attic—perhaps with greater advantage to the avoidance of possible smells. All the provisions can soar up there in the lift with the greatest ease, and when prepared, by the same means descend to the serving-room. Apart from that kitchen question, the wing system of plan may retain all its architectural attractions, not only without any sacrifice of convenience, but even with a certain convenience and suitability. In most houses of the largest class there is now a bachelors' stair and a bachelors' suite of rooms, for visitors who are of that persuasion. Why not a bachelors' wing as a separate block, with a smoking-room on the ground floor and bedrooms above? And then, if one were to match that at the opposite angle by a young ladies' wing, with a charming drawing-room or boudoir on the ground floor. Then what opportunities for a delicate and appropriate contrast in the design of detail and ornament in the two wings, suggesting their opposite characters—boldness and vigour symbolised in the one, beauty and grace in the other, at the same time keeping the general mass and outline of both sufficiently alike for architectural symmetry; a kind of symmetry far more interesting and eloquent than that frigid mechanical symmetry of the Renaissance, each pilaster and each urn on one side answering to a precisely similar one on the other side. I declare one's imagination is quite stimulated by the thought of the artistic opportunities that such an arrangement would afford. Nor is there any inconvenience in the arrangement of a laundry wing, and some other offices perhaps, connected with the main house by corridors, and yet separate, and turning their backs on it; the back walls being treated, as at Mentmore, in a decorative manner. The stable wing, it is to be feared, will hardly be accepted, unless where, as at Blenheim, the scale is so great that it is really a long way from the house.

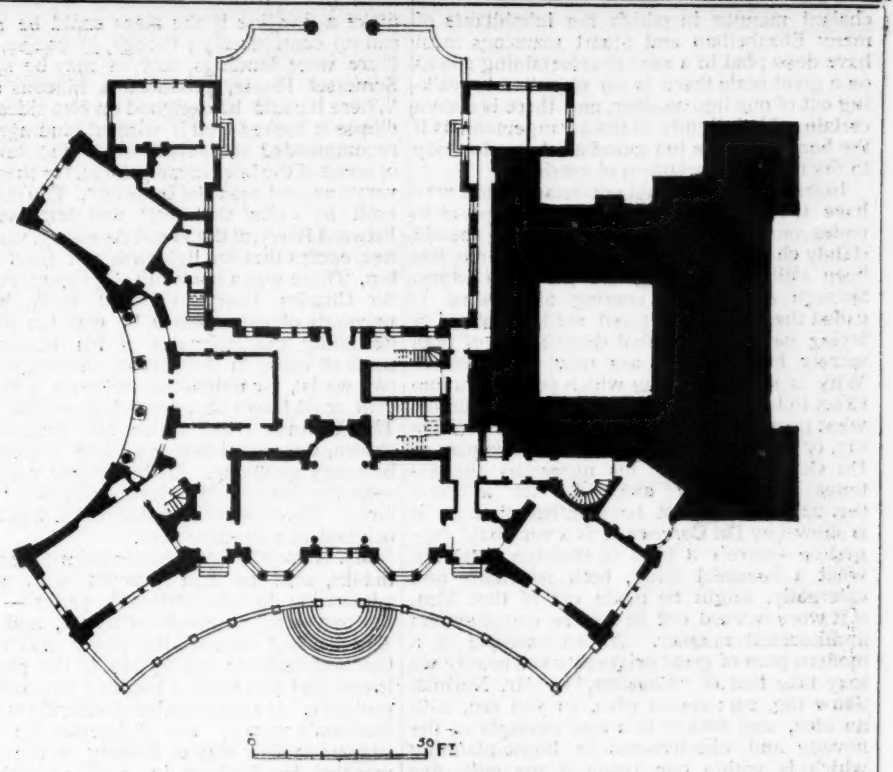
There is no occasion, however, that we should imitate the favourite form of plan of the Renaissance architects. I would only urge that it is not necessarily inconvenient, and that its architectural capabilities have not been exhausted. But let us summarise the problem from the present point of view. In a mansion of the largest class we have to provide for two distinct departments, very different in their architectural requirements, and yet which must be in tolerably close relation with each other. We have the owners and their family and visitors on the one hand, with the rooms in which their life is to be lived; and on the other hand the servants and the rooms in which the work and supply of the house have to be carried on. Granting the principle that the mansion should be treated architecturally in a symmetrical manner (because no other treatment is so dignified), how are we to treat these two departments? The Georgian system was to have one great parallelogram of building, and divide it up as convenient, without any reference to the exterior design; which can hardly be called an architectural method. But if you wish for one great block, it is possible to divide the two departments vertically, and not horizontally; to have a lofty two-storied basement, with a very wide sunken area for the lower windows, and place the state rooms and living rooms on the first-floor, with a great staircase up to their level. That is the old system of the Italian Renaissance palaces; it has been little if at all tried



21. *Bridgewater House (Barry).*



22. *Plan by du Cerceau (no Scale).*



23. *Chesters (Mr. Norman Shaw).*

in England, but it naturally suggests an architectural treatment which would be very fine and effective indeed, and is worth thinking of. On the same principle of vertical division the servants' bedrooms could all be collected in the highest story, occupying what in a classical building would be called the attic; and, as before observed, in these days of lifts there is no difficulty in such vertical division. Another method is the favourite one of the Renaissance architects, of the wings connected to the house by corridor buildings, which has the merit of making the subsidiary departments subserve the general architectural effect, and the inconvenience of which, as I have ventured to suggest, is, if it is properly managed, more imaginary than real. Then we may have, what is the more favourite scheme now, the servants' quarter and offices rather more closely attached to one angle of the main building, forming a second parallelogram placed *en echelon*, or a long wing stretching away to the rear. But in this case it is difficult to make it in any way part of the main architectural design; it must be retired and planted off out of sight. A central connexion of the offices with the back of the main building may sometimes be possible—it depends on the plan of the house and the direction in which the garden is laid out; but in the most stately type of house, as a general rule, it is desirable to have the garden entrance on the central axis line and opposite to the main entrance, as it is in nearly all the great Renaissance plans.

In regard to the house itself, there are three main points to consider: the approach and entrance, the hall and staircase, and the entertaining rooms. A forecourt of some kind, if possible flanked by something in the way of a colonnade or cloister on each side, always adds to the dignity of the house; the conventional sweep-drive up to the door is a wretched landscape-gardener's substitute. And for the access to the house there is nothing so fine as a flight of steps—still more a double flight, in two curves, provided the basement is high enough to afford opportunity for it. We have had no greater loss than that of these beautiful flights of steps up to the doors of the old mansions; for which, in our modern anxiety for comfort, we have substituted that odious excrescence called the *porte-cochère*. Certainly, were I a millionaire and could build a mansion to suit my own tastes, I would revive the flight of steps; but people coddle themselves so now that they are quite afraid of walking up an out-door flight of steps; they must forsooth be set down under cover, and for the sake of their vile bodies they sacrifice architectural dignity. If we must have a *porte-cochère*, better to have a central projecting tower or pavilion and make the ground story an open arcade or colonnade; then you may have a fine effect; then it appears as part of the architectural design; while the mere *porte-cochère* never looks like anything but an excrescence. Inside the house, we must have a large central hall, lighted from above, unless it goes right through the house with a great window at each end; and we must have above all things a spacious and noble staircase, not hidden away out of sight. A flight of stairs, well designed, is one of the finest objects in architecture; and on a reception night with a crowd of guests, it plays a great part in the show; like Jacob's ladder, angels ascend and descend upon it. Where there is a very large hall, the stateliest staircase will probably be one which is in the hall and forms as it were part of it; one may even commence it with a short flight of a few steps extending right across the hall. The difficulty in such a case is to plan it so that it will not interfere, above, with the integrity of the gallery or loggia which you will certainly have round the hall on the upper level. In the case of Bridgewater House (fig. 21), Barry, as Professor Kerr mentions in his book, intended at first to have the stair in the midst of the cortile, where the dotted lines are shown; on second thoughts he took it out of the cortile and made it a separate staircase at the end; the cortile may have gained, but the stair lost in dignity. Delicately modelled curves of the edges of the steps, in the wide lower flights especially, add much to the beauty of a staircase; on a small scale this is very well done in the charming staircase designed by the late Mr. Cockerell for the Society of Water-Colours' rooms, which I recommend students to look at. The weak point in a staircase to my mind, is the raking soffit, and it is well where it can be designed so that this is hidden and only the steps themselves visible. This is very well done in the grand staircase of the Paris Hôtel de Ville, where two broad flights, between marble-lined retaining walls, start right and left from the lower hall; and this kind of staircase may be also applicable to a private mansion on a large scale, where the upper plan was such as to admit of landing the staircases at two widely removed points. At the same time it may be said that the double staircase has more affinity with the idea of a public hall than of a private house. Where the general plan allows of it, a flight of stairs on a long curve is nearly always fine; not a circular stair—that looks too utilitarian, as if it were done to save space, and the curve is too quick; but an elliptical hall, for instance, with a stair following its curves up on each side, is a noble scheme. But there is no end to the beautiful things that may be done with stairs, where there is space enough; they are the poetry of internal architecture. [In connexion with this subject the lecturer mentioned, illustrating it by a sketch on the board, the plan of a staircase which he remembered in an old book of French plans of mansions, where the state rooms were on the first floor, in two parallel suites running from front to back of the house, while between them a very wide staircase, in a succession of short flights, went from the entrance right to the back, landing in a vestibule connecting the further ends of the two suites. There could be nothing finer for a stately effect. The late Edward Barry, he said, had planned the stair in a similar way in his design for rebuilding the National Gallery.]

As for the entertaining rooms, the great desideratum for them is that which applies also to the whole ground-plan of the house, viz.: that they should represent an architectonic conception, in the configuration of each room and in their relation to each other. Systems or ideas in planning are endless; the great thing is that there should be an idea, and not merely a space divided into rooms by walls. Another point that will almost always be right (though there may be exceptions in special cases) is that the principal dining-room should be on the opposite side of the hall from the drawing-rooms. Another is that the principal rooms should be planned on an axis, and should be capable when desired of opening out a vista through the greatest length of this portion of the house; remembering, as before suggested, that mystery is not the attribute of a great house so much as grandeur. Then as to the question of inter-communication, a corridor, of the ordinary proportion of width, is not the best suited to a mansion; it is a feature more characteristic of a public building; if there is a long apartment of communication, it should be rather of such proportionate width as may remove it from the category of corridors to what is more properly called a "Gallery"; not a mere passage, but a long room which is also a passage. And in a state suite of rooms it is a question whether some of the rooms of ordinary proportions may not quite fitly be planned to open one out of another, and one be used as the passage to another. Upstairs, of course, we must have corridors—we cannot in the present day walk hrough each other's bedrooms in the non-

chalant manner in which the inhabitants of many Elizabethan and Stuart mansions must have done; but in a suite of entertaining rooms on a great scale there is no objection to walking out of one into another, and there is even a certain added dignity in the arrangement, as if the house were on too grand a scheme to stoop to the mere utilitarianism of corridors.

In conclusion, I would encourage those who have the chance of building large houses to endeavour to revive in them some of the old stately character which, as it seems to me, has been sadly lost during the present century, through a mistaken craving after what is called the picturesque; and not to be afraid of trying new and original dispositions of plan merely because they are new and original. Why is a form of plan which promises a fine effect to be shirked merely because it is unlike what people are used to? You would perhaps say, or your clients would say, that this plan of Du Cerceau's (one of his numerous suggestions) was a very *outré* idea for a house (fig. 22); and it must be admitted that as it is shown by Du Cerceau it is a very bald suggestion—merely a kind of skeleton plan; but what a beautiful thing, both internally and externally, might be made out of that idea, if it were worked out in a more complete and architectural manner. As an example of a modern plan of great originality and beauty we may take that of "Chesters," by Mr. Norman Shaw (fig. 23); also a plan, as you see, with an idea, and which is a fine example of the novelty and effectiveness in house-planning which is within our reach if we will give our minds to it. There is far more to be done in the way of invention and fine effect in the planning of the higher class of mansions than has yet been done; while we can emulate, in new forms, the stateliness combined with variety of the Renaissance plans, we can clothe them with detail much more free and expressive than the dead scholasticism of the Orders with which our able Renaissance predecessors were fettered. But we must begin with the plan.

The Chairman, in opening the discussion, said they all welcomed Mr. Statham for he took such a real and continued interest in the Association. None of those who were present on the occasion would forget Mr. Statham's extremely interesting lecture before the Association on London bridges, and the present paper had been looked forward to with a good deal of interest. No one could regret that the choice of the subject was left to Mr. Statham. The paper had brought together a large audience, and they were honoured by the presence of the President of the Royal Institute of British Architects, Professor Aitchison, whom he would ask to address the meeting.

Professor Aitchison, in proposing a vote of thanks, said he had little to say except to endorse the remarks of Mr. Statham as to the very much greater effect to be got by having the plan made architecturally than by letting it grow in a haphazard manner. When he saw Castle Howard and Blenheim, the greatest want he noticed was the absence of a fine staircase. There were two staircases at Blenheim, opposite one another and on either side of the hall, and they were ridiculous in scale for the size of the house. He tried to solve the reason of this and he had come to the conclusion that as the state rooms were on the ground floor, there was no reason for a grand staircase to reach the private rooms of the house and the servants' quarters. There could be no doubt that a fine staircase was a great attraction in a house when the rooms were to be used for state or for receptions. When the principal rooms of a large house were on the first floor, the staircase ought to be striking in character. A London house, designed by Anthony Salvin, with a very fine staircase, was Lord Leconfield's house in Chesterfield-gardens. The staircase had a single flight up to the landing, and from it two to the first floor gave a very fine effect, indeed. He was not sure that any finer effect could be obtained than from the *scala regia* which Mr. Statham had sketched on the blackboard, and no doubt most of them had seen one of Soane's designs for a *scala regia* for the Houses of Parliament. The next finest staircase, in his opinion, in London was the one at Ashburnham House, by Inigo Jones. The effect was perfectly wonderful in coming on to that staircase from the comparatively mean and low hall. He did not quite agree with Mr. Statham as to the circular staircase; it would make a fine line if the steps could be got to run up continuously; though, of course, when there were landings, they, as may be seen at Somerset House, produced a hideous shape. Where it could be designed on two sides of an ellipse it looked well if without landings. He recommended students to study the staircases of some of the late Italian palaces, for they were very fine, and beautiful in design. The staircase built by Colin Campbell, and improved by Edward Barry, at the Royal Academy, was very fine, except that the light was not good at the top. There was a harmony of proportion in all Sir Charles Barry's classical work, but for purposes of convenience, he was too fond of designing the staircases of his houses, like some of those in the Italian palaces, between two walls; for unless they were on a magnificent scale they lost a great deal of their effect. The German plan, which Mr. Statham had shown, was very interesting, and it seemed to be a very good one. He had never previously seen the plan of Mr. Norman Shaw's "Chesters." There was no doubt that it was a most original and effective plan.

Mr. Halsey Ricardo, in seconding the vote of thanks, said he had listened with sincere admiration to Mr. Statham's paper — to its thoroughness, comprehensiveness, and logic. The leading idea in the paper was that of the architectonic conception of the plan, and it was that that made a building interesting to posterity. He agreed almost entirely with Mr. Statham's views; the difference he would suggest in their way of looking at the matter was that Mr. Statham, in speaking with great enthusiasm of the plans of the grand houses which he had exhibited (an enthusiasm which he thoroughly shared), seemed to think that those plans were good material for use in the present day, and that there was a great deal in them to be boldly and bodily incorporated. He (the speaker) did not know how many of his hearers would agree with him in thinking that those plans had a sort of echo of the past about them. They were exceedingly interesting—rich in association and history—and had a pathetic interest for us because they did not belong to our own time—one wished they did. They had an interest for us similar to that one felt for the castles referred to by Mr. Statham. The Elizabethan dwellings that followed the Mediæval castles were quite different from them, because the conditions had changed and the inmates had no fear of attacks from marauding bands. Then came the Renaissance, which, in England, he thought, was less genuine and expressive than the preceding architecture. The Renaissance in Italy was a natural occurrence; there was a sort of tumultuous character about the people, and life was extremely vivid and real, because it might be lost at any time. The Farnese Palace represented Farnese, and the kind of person he was, and the sort of entertainments and receptions he gave; they were a very natural kind of embodiment of him and his aspirations and hopes and fears. Again, the same remarks applied to France, in the time of Louis XIV., when that monarch tried to do the Imperial Cæsar. But in England we had not had that kind of person so much, although there was something of it. "The stately homes of England," that Mr. Statham had been showing were, he thought, not representative of English thought and feeling. If it were desired to build so as to interest the thoughts and feelings of posterity, they must embody the thoughts and feelings of their age in their buildings, and he did not think that such a building as Blenheim, for instance, represented that; Blenheim was extraordinarily ingenious, but was it not rather a dreary affair to look at? It was interesting to the architect because the architect understood the difficulties faced in its design. These—or even earlier work like that at Whitehall—were creations of the brain rather than the heart. This—intellectual architecture he would call it—had no hold on the people: they did not feel its influence. We talked about "masterpieces," and yet we let two fine Portland stone-fronted houses, balancing each other in Cavendish-square, be spoilt by the buildings put up against them; and we tranquilly bore the ruination of Stratford-place. This academic architecture interested people very little; and was that not a call to get closer to the character of the people they built for if they meant their work to last? When architects talked about fine effects, were they not referring to effects that were born of the office and not of the real world outside? The "stately rooms" of stately palaces, &c., did they belong to our time? Did they not rather belong to a previous century? We had changed very much in character and mode of life since 200 years ago. He heard in that room recently a statement that the architectural works of the present time that were most characteristic and actual were the public-houses and the underground conveniences.* He would rather say that the most characteristic and real architectural works of the present day represented the humane side of our human nature, viz., our great hospitals, our public libraries, and our Board schools, and he thought that in time to come people would look back with pride upon them. Our architecture, he thought, should embody that view, and should be more humane in its character. The houses dealt with by Mr. Statham were rather frigid, stately things, and when they asked themselves: "Would I have this grand house for my own, to live in?" They would say: "No; I do not mind looking at it and admiring it from a place just outside the Park, but to live in it would be a misfortune." They were glad that these buildings existed, but to reproduce them or their sentiment would be a mistake, for they belonged to another time. The idea that they had to get in their architecture was the humane and kindly one. The offices, for instance, in houses should be on a different scale from what they were in Blenheim and such houses. The servants should be properly treated and should not be ignored—cramped in the basement and skied in the garrets, and put behind screens; at the same time, of course, they could not live in the house sharing all the advantages of the owners. He thought that the doors of rooms were often wrongly made to open so as to disclose a dead wall, whereas, in his opinion, they should open to exhibit a window, with its sense of expanse, and the romance of incident and colour beyond. This was a shy, private age, and there was no reason, therefore, why our architecture should possess the ostentation and size of the buildings of 150 years ago. The more heart they put into their buildings, the more interesting they would be to the people who lived in them and the more interesting to the people of succeeding times.

Mr. Beresford Pite said it gave him great pleasure to join in thanking Mr. Statham for the liberal use he made of his gifts. They not only remembered Mr. Statham's lecture on the bridges of London—there were his recent excellent lectures on design to the students, and his lecture on street architecture. The subject of the present address—which no doubt would bear fruit in the studies of members of the Association, as Mr. Statham would wish—was a very interesting one. We had, he supposed, now arrived at an era of house building, having passed through the era of church building—in which they studied cathedrals in order to build small churches—and Board school building—about which he could not agree with Mr. Ricardo that they would go down to posterity. We had passed on through the era of free libraries and municipal buildings of one sort and another, and had unconsciously, perhaps, been introducing into them the porticos, pilasters, &c., of the Italian palaces, and Kedlestone and other large and grand houses had been drawn upon for the municipal buildings of the present day. He did not know what had directed Mr. Statham's attention to this class of building; his survey was not, perhaps, so wide as he had accustomed them to. Perhaps Mr. Statham had been over-fascinated by the "Vitruvius Britannicus" and had fallen unduly under the bewitchment of the grandeur of the quadrants and courtyards shown in it. But they must not forget that Mr. Norman Shaw had fascinated their world with the art of romantic Gothic planning long before "Chesters" was thought of through the hundred and one things which he imported into the planning of a modern mansion to give the charm of a mediæval building. There was an art and charm in Mr. Shaw's picturesque planning as there was in his geometrical planning. The interest of the subject was due to the subject and not to its relation with everyday practice. One of the earliest papers read there that he heard was by Mr. Ingress Bell, on ideal dwelling-houses, in which the author pictured the ideal dwelling-house as described by Thackeray, Dickens, Tennyson, and other writers; and had quoted from Thackeray a satirical description of the gaunt portico. They had passed away from

*See report in the *Builder* for November 19 last, page 461.

that distant period, but now there appeared to be a swing of the pendulum. Lord Curzon, they understood, would find Kedleston in Calcutta, and Mr. Statham was putting before them, with the intention of cultivating their imagination, the plans of houses with the "gaunt porticos," and was suggesting that they should regard those plans as useful pabulum for architectural design in the present day. Those plans had an undoubted interest—as a series of cathedral plans or other plans would have. Every arrangement of plan, in fact, was interesting and charming. But when they came to plan a building artistically they would be faced with the difficulty of cutting down in order to deal with their client's views, with comfort — or modern ideas of that — and economy. These were the conditions which governed them right and left; they would not have the scope, either in town or country, of the designers of the buildings dealt with by Mr. Statham, and they would have to use their inglenooks, &c., and be content with them. But they had more opportunity for planning a house in the real exercise of the art of architecture than some of them imagined. That was in facing the everyday and well-known circumstances and needs of life, and dealing with them suitably and attractively. There were no complicated problems to deal with, but there were needed the use of a cultivated intelligence and the love of beauty (which constituted their art)—the suitable planning of a door in a dining-room, for instance; the getting rid of such awkward things as chimney-breasts; and, generally, making the room as interesting and beautiful as possible, were some of the conditions, even to placing the kitchen where it would obtain a north light, and as suitably for the cook as possible. Architects must take their ideas, to a large extent, from their clients, and do the best they could for those clients, but whether they could analyse the motive of the age in which we live sufficiently to translate it into brick and stone was, and would be, a puzzle.

Mr. Francis Hooper said that previous speakers had referred to differences in the conditions of to-day compared with the times when the magnificent houses referred to by Mr. Statham were erected. Many of the owners of those buildings were the favourites of the Court, depending for their possessions on the favour of the Sovereign. To-day some of our largest houses have been built for those who have been so fortunate as to strike a mine of some sort, and their wants were not of a very dignified character, and it was not remarkable that architects failed to get much inspiration in studying those wants. While we heard a great deal about the houses of the wealthy of the past, we learnt little or nothing about the dwellings of the poor. To-day we were erecting artisans' dwellings, some of which would probably live for 300 years—unless they were pulled down because they were insanitary, which was not unlikely. In our costly hotels and in our town halls—our County Council buildings, our Polytechnics, and institutions of that sort—much skilful planning was necessary, and many opportunities were afforded for producing the symmetry which was secured in days gone by. What he wanted to suggest was the possibility of getting symmetry in a group of cottages. At Guildford Mr. Ernest George had erected some beautiful almshouses for Lord Onslow, and they all knew the group of almshouses, by Wren, at Mile End; was it not possible, in our modern dwellings, to get something of that charm, instead of the barrack-like effects which appeared to satisfy to-day? Then as to hospitals. So far as sanitation was concerned they were magnificent buildings, but their architects had to apologise if they put in them anything in the way of architecture, and as to ornament, an excuse had also to be found for it. In studying the bodily needs of the inmates of these buildings, one should not forget or neglect their mental wants, nor the needs of people who were sound in mind and limb. In planning houses in rows, too, was it not possible to get an effect by grouping—something to break the monotony of the modern street fronts?

The Chairman, in putting the vote of thanks to the meeting, said he could not help noticing particularly one remark Mr. Statham made in his paper—viz., about the Gothic revival—a remark that was made in nearly all the papers they had now. Nearly every one seemed to think now that the poor Gothic revival was responsible for so many sins. No doubt to some extent it was, but it had also been responsible for good, and no one could help acknowledging it. Mr. Pite had struck the chord in his (the speaker's) mind. There had been no other recent generation that, in house planning, had produced a man who had planned such grandly-picturesque houses as Mr. Norman Shaw. That planning came about through the Gothic revival, too, and he thought that we might claim it as a really and truly representative of our national domestic architecture. Much as he admired the German and French house planning, he felt we had a distinctly national form of planning in our domestic buildings, and that neither in those countries, or in America, or anywhere else, was there such truly domestic architecture as in our own country. He most thoroughly agreed with Mr. Ricardo that, in the humane side of planning in hospitals and lunatic asylums, for instance, they had work that would be specially distinctive of the time in which we live. As to picturesqueness, surely that was, and should, be, found in small houses. The word had been rather sarcastically used, but he thought it had a good meaning to many of them and it should not be despised. In large and stately buildings greatness and not picturesqueness should be sought after, but the picturesque plan was the result of an insufficiency of means in the designing of a building, and surely it was not out of place in such buildings, where grandeur was impossible.

The vote of thanks having been heartily agreed to,

Mr. Statham, in reply, said the worst of reading papers was that people always made out afterwards that one had meant something one did not mean. His friend Mr. Ricardo remarked that the houses he had been specially referring to were too frigid and stately. He (the speaker) had said so; he suggested that the same ideas could be treated in modern days in a more interesting manner. He had never said he wanted any one to imitate the Renaissance plans; what he did say was that they were suggestions for ideas; and he thought they showed finer ideas than what he had called the rambling plan. Mr. Ricardo thought a modern house of the kind would be all very well to look at, but not to live in. In that he differed *in toto* from Mr. Ricardo, for he had a passion for grand houses, and he would like nothing better than to live in one. Mr. Pite was mistaken in thinking that he had been fascinated by the "Vitruvius Britannicus." The fascination had grown long before looking at that book. He had merely gone to the "Vitruvius Britannicus" for illustrations, not for inspiration. He sympathised with Mr. Pite's feelings about Mr. Norman Shaw's plans, and he had a great admiration for Mr. Shaw's houses generally, but all those "hundred and one things" that Mr. Pite referred to seemed to him like an attempt to make the picturesque on purpose; a modern pose, in fact. As the Chairman had said, picturesqueness had its place in small houses, but what he wanted to see was distinct form in houses—a distinct idea. When the Chairman spoke about the national form of house architecture, he thought, Is it not a national no-form? Some of our best architects designed houses in this rambling manner, and in German and American houses he saw more thought and more endeavour to make a consistent whole of a house.

The Chairman announced that the next meeting will be held on the 20th inst., when Mr. Beresford Pite will deliver an illustrated lantern lecture on "Ancient and Modern Buildings in Palestine."

The meeting then terminated.

A DISPUTED CONTRACT.—On the 5th inst., at the Surveyors' Institution, Savoy-street, Victoria Embankment, an arbitration case came on for hearing before Mr. Latham Withall, as umpire. The parties to the action were the St. Luke's Vestry *v.* Pedrette & Co., contractors, and the counsel for the parties concerned were Mr Bartlett Dennis for the Vestry and Mr. M'Coun for Messrs. Pedrette.—Counsel for Messrs. Pedrette stated that that firm had contracted with the St. Luke's Vestry to carry out certain work under contract at a price of 6,870*l*. It was subsequently found necessary to extend the works, and eventually the total price came up to 11,000*l*. Of this sum about 2,000*l*. was disputed by the Vestry. Claimants contended, however, that the whole of the work done was necessary, and that the prices charged for the work were reasonable. This was disputed by the Vestry.—After hearing evidence the arbitrator reserved his award.

ARCHITECTURAL SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The ordinary monthly meeting of this Society was held at the School of Art on the 10th inst., when Mr. Frank Baggallay delivered a lecture on "Some Common Errors in Architectural Design." We hope to be able to print the paper in our next issue. The lecture was illustrated by drawings and diagrams. On the motion of Mr. E. M. Gibbs, seconded by Mr. J. B. Mitchell Withers, and supported by Messrs. W. C. Fenton, F. W. Chapman, W. J. Hale, and the Chairman, a hearty vote of thanks was given to the lecturer. It was announced that the series of lectures by Mr. H. Stannus, of London, would commence on Thursday, the 19th inst., and on each Thursday evening up to and inclusive of March 23, in the Montgomery Hall.

Illustrations.

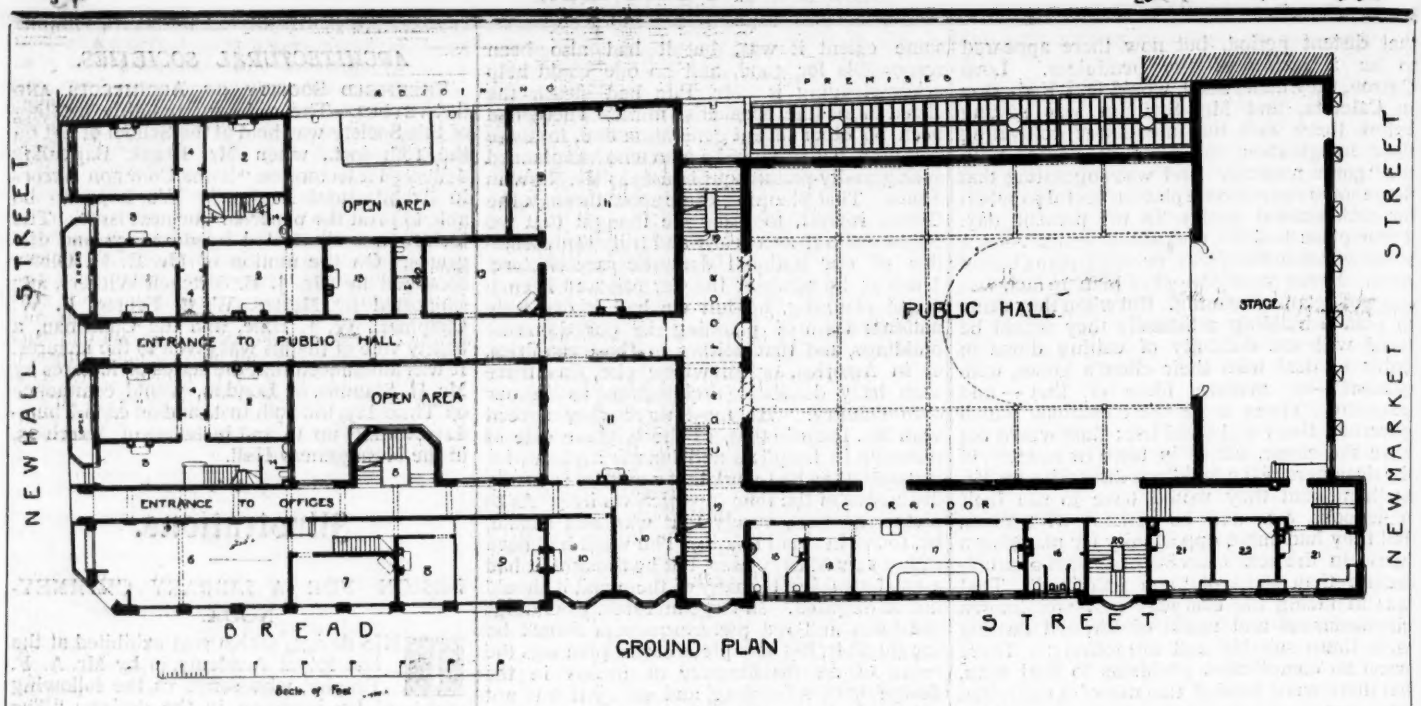
DESIGN FOR A LIBRARY CHIMNEY-NOOK.

THIS design, which was exhibited at the last Royal Academy, is by Mr. A. F. Brophy, who sends us the following sketch of his intention in the design: "The idea is to take the story of Adam and Eve for the foundation or surrounding to the fire—the first generating element. From the key-stone springs the Tree of Knowledge, and the fruits thereof are shown in the books giving the history of man, on the shelves ranging with the relief panels. I crown this portion with the bust of Lilith; I take her as typical of woman's power, given to her by her beauty and wit."

WORKMEN'S CLUB, &c., BIRMINGHAM.

THIS building, which also includes a savings bank and offices, is being erected on a site with a frontage to Newhall-street, Birmingham. The plan of one floor is appended. From the Newhall-street level the building will rise to the height of four stories, the attic story in the front being continued as a mansard in Cornwall-street. The material will be red brick, enriched with bands, mouldings, and arches of buff terra-cotta. Having in view the use to which the Newhall-street side will be put, the architecture there will be almost domestic in its character. The design has been adopted by the architects from that of an Elizabethan mansion. The front, recessed from the street line so as to give room for a palisaded area, will be broken at each end by projecting sections crowned by gables of curved outline. The high-pitched roof of the gables in front and the mansard roof at the side will be of grey-green slates. The middle entrance, leadingto the public hall, which forms an important part of the scheme, will be a projecting porch with a boldly-moulded arch and pediment. A smaller entrance of similar design will be provided for the offices' staircase, and in the base of the turret will be a large arched door for the bank, the adjoining window of which, in Newhall-street, will be similarly treated.

The "Workmen's Hall" block, with its subsidiary buildings, will extend to New Market-street. Its architecture will be in harmony with the rest, and the material will be the same. The ground floor, corresponding with the basement of the front portion, but given a greater height by the drop in the level of the street, will be laid out partly as a club. It will have a smoke-room (35 ft. 3 in. by 62 ft. 3 in.), a dining-room (44 ft. 6 in. sq.), a games room (35 ft. by 31 ft. 3 in.), with a porter's room, a servery, a bar, and other conveniences, and committee-rooms for the institutions using the building. The rooms above will serve as offices for the institutions using the buildings. The doctors' rooms, entered by their own doors from Newhall-street, will be on either side of the main entrance, three suites being provided on the ground floor and four on the first floor. Twelve suites of offices will be included in the letable space of the front block. The public hall will hold from 1,700 to 2,000 persons. There will be a stage, 80 ft. by 28 ft., with green-room, dressing-rooms, scene-dock, and a sunk enclosure for the orchestra. The auditorium will measure 90 ft. by 64 ft., with a height to the centre of the elliptical ceiling of 48 ft. and to the wall-plate of 36 ft. On three sides will be a gallery rising to the top of



Workmen's Hall and Club, Birmingham,—Plan.

REFERENCES TO PLAN.

1. Consulting Rooms.
2. Waiting Rooms.
3. Entrance to Doctors' Chambers.
4. Stores.
5. Lift and Stairs to Offices.
6. Banking Room.
7. Manager's Room.
8. Auditor's Room.
9. Clerks' Room.
10. Offices.
11. Meeting Rooms.
12. Committee Room.
13. Secretary's Room.
14. Lavatory.
15. Ladies' Lavatory.
16. Gentlemen's Lavatory.
17. Bar.
18. Attendant's Room.
19. Stairs to Public Hall.
20. Exit Stairs.
21. Dressing Rooms.
22. Green Room.

the room, and having eleven tiers at the end and five at the sides. Access to the gallery will be given by corridors running round the hall at different levels. The stage will be structurally isolated from the auditorium, and will have an iron curtain, while there will be an ample number of exits from the hall.

The contractor is Mr. A. B. Hollingsworth, and the architects Messrs. Essex, Nicol, & Goodman, of Birmingham.

COMPLETION OF TOWN HALL BUILDINGS, CLERKENWELL.

THIS drawing, which was exhibited at the Royal Academy of last year, shows the elevation of the building at the junction of Middleton, Exmouth, and Rosoman streets.

The tower has been so far omitted in execution, but it may be carried out in the event of Clerkenwell becoming a municipality.

The architect is Mr. C. Evans-Vaughan, and the builder Mr. B. E. Nightingale.

DESIGN FOR A TOWN CHURCH.

THIS is the design which gained for its author, Mr. W. Hawke, the Royal Academy Travelling Studentship for 1898. The subject was a church to seat 800 persons, on a given site.

We give the plan, two elevations, and one section of the design. As we have already said, we think the position of the dome should rather more decisively govern the character and setting-out of the plan; perhaps the lines of seating, running unbroken past the western piers of the dome, rather tend to increase this appearance of a want of decisive design in the plan. The author has adopted the system of an outer and inner dome (both of masonry), the inner one being of elliptical section.

NEW CHURCH FOR ST. LUKE'S PARISH, DARLINGTON.

THIS drawing, which shows the perspective view and plan of a new church design for the Parish of St. Luke, Darlington, was exhibited at the Royal Academy of last year.

The plan, as will be seen, is rather unusual; that of a two-aisled church, with a transeptal projection on the south side only. Externally the whole groups very well.

The architects are Messrs. Clark & Moscrop, of Darlington.

THE SURVEYORS' INSTITUTION:

DISTRICT AND VESTRY SURVEYORS.

A MEETING of the Surveyors' Institution was held on Monday in the temporary premises, Savoy-street, Victoria Embankment, W.C., Mr. Robert Vigers, President, in the chair.

The minutes of the last meeting having been read and confirmed, and some donations to the library having been announced, the discussion on Mr. W. Weaver's paper on "The London Building Act and the Official Supervision of Buildings," read at a previous meeting,* was resumed.

Mr. J. Douglass Mathews said he was somewhat surprised that Mr. Weaver, as a practical man, should have brought the subject forward, though he would not have wondered if some legal member had done so from a theoretical point of view; but now that the subject was under discussion it was important that it should be considered from both sides. He was surprised that Mr. Weaver should seriously propose that the work which had for so long been carried out by two officials should be performed by one. Before any change was made it should be shown what necessity there was for it, and until this was done District Surveyors ought not to be dispensed with unless they were incompetent or careless. Much of the difficulty had arisen in the confusion of the two offices by the use of the word "surveyor," which might have been avoided if the term "engineer" had been used. The positions of the District Surveyor and the Local Surveyor were dissimilar; one was appointed for life, unless incompetent, and the other by the local authority, and liable to dismissal by his employers. The position of District Surveyor, dated from the time of the Fire of London, and it had always been regarded as one of importance, and has attracted good and well-known men who did not seek office, as had been suggested, for the sake of obtaining private practice. That position had been altered comparatively recently by a resolution of the London County Council, and though the surveyors who were still appointed made good and able officers, yet it was an undeniable fact that the number of men who now came up for examination as District Surveyors was not a sixth of those who formerly entered. The education and training of a Local Surveyor was rather gained in an engineer's office than in an architect's, and an examination for such an official would most likely be held in connexion with the Institute of Civil Engineers rather than the Institute of Architects; as, of course, the examinations differed a great deal. As to the qualifications of candidates, after an experience of twenty years' on the Statutory Board of Examiners, he was able to say that it was not those who prepared the best designs who necessarily obtained their certificates as District Surveyors. Although many artistic architects had passed the examination, but did not seek the appointment of a District Surveyor, though amongst that body there were many who were both artistic and practical men. The certificate for a District Surveyor could not be gained merely by a knowledge of materials and such information as could be obtained from books. He had to satisfy the examiners that he could design a building constructively, and was likely to use materials of such strength and in such a way that they were properly fitted for the work they had to do. The examination was a searching one, and the examiners tried to test the fitness of the candidates in every way. Amongst other duties, the District Surveyor had to approve or reject drawings of public buildings in all the details of construction. Many public buildings were designed by architects of knowledge and skill, and it was very necessary for the surveyor to have as good a knowledge as the architect. In the case of dangerous structures, a great deal of experience and knowledge was necessary on the part of the surveyor, for although a crack in a building may appear, it was often not supposed to cause the building to be dangerous, and the District Surveyor, in such work, had to act with care and discrimination. Builders, large and small, were generally satisfied with the present arrangement, and were not at all anxious for a change to be made. Many small builders looked upon the District Surveyor as a guide and friend, for he explained to them the Building Act, and pointed out what they could and could not do. He was easily approachable, and at a very short notice he gave his opinion or decision. The District Surveyor endeavoured as far as possible to aid and promote building rather than delay it, and architects, even, were not beyond seeking the advice of District Surveyors. With the enormous amount of building that went on in London the District Surveyor clearly did his duty or there would not be so few accidents as there were. As to jerry building, it was not confined to London, nor did it apply to walls alone. It applied just as much to bad carpentry, plumbing, drainage, and other work, as to the structure generally, and the District Surveyors, both in 1878 and 1894, did their utmost to obtain more stringent measures to prevent this

* See our issue for December 17 last for a report of the meeting at which the paper was read.

class of work, and, he considered the results had been satisfactory. Could the work of so useful an official be better done by a Local Surveyor, or, as Mr. Weaver put it, could the work of the Local Surveyor be done by the District Surveyor? He believed there was no District Surveyor who would venture to take up the work of the Borough Surveyor; and the duties of the Local Surveyor were so multitudinous that he had no desire to undertake them. If the Local Surveyor attempted to carry on the work of the District Surveyor, it would result in the appointment of inspectors, which would not be for the benefit of building. A Local Surveyor would not be able personally to give that time and attention to the details of building (which was such an important part of the District Surveyors' duty), and when an inspector reported anything of difficulty to him, he would, if there was any serious question involved, have to take the matter to his committee. The District Surveyor, on the contrary, acted independently. As to Mr. Weaver's remarks about the fees of the District Surveyor, he (the speaker) thought that the general feeling would be that the fees should be part of the expense of building, and as they were not large, it was better to be paid by the builder rather than for them to come out of the rates. The fees were not by any means excessive, considering the amount of work done, and it was only the number of works in hand that made the position acceptable.

Dr. Longstaff said it was one thing to consider how building in London was to be regulated, and another thing to consider how the existing method was to be carried on. Mr. Weaver attached great importance to the method that was everywhere the rule except in London, that a building should be supervised in all respects by the municipal officer. We had to deal with London as it is, and the Building Act as it is, and, as far as he knew, and he had examined several local codes on building, he did not think that any municipal building surveyor had the same duties to perform as the District Surveyors of London. He was not at all certain that that was to the advantage of London. He would like to repeal about one-half of the London Building Act, and it might be the portions which they (the surveyors) would not like repealed. The Building Act was weaker than it should be and it was more meddlesome than it ought to be, and he was not certain that the large power given to a District Surveyor to supervise a building was necessary, and, if not necessary, it ought not to be. But they had not met to tear up the Building Act, and so long as this special power was given to District Surveyors, it was plain that it should be exercised by an architect—by a thoroughly educated architect. It would be absurd to put a parish surveyor in the place of the present District Surveyor, for most parish surveyors did not possess the necessary education to enable them to pass a proper opinion as to whether a building was being constructed in every respect according to the Building Act. So long as these powers were given to District Surveyors, every endeavour should be made to get the best officers possible. As to the new rule about District Surveyors not taking private practice, there was a good deal to be said for and against it. The change, however, had worked better than he thought it would. One point made by Mr. Weaver, and a sound point he thought, was as to the apparent conflict of jurisdiction, as to the drainage of a house, between the Local Surveyor and the District Surveyor. That was an anomaly, and in every other part of England the whole of such matters was dealt with under one act—by by-laws of the Public Health Act. Could not the inconvenience be minimised of this kind of work being passed by the District Surveyor, and then disapproved by the Local Surveyor? As far as he knew, there was only one real inconvenience of this kind, viz., as to water-closets. He thought that there might be a small amendment of the Building Act so as to bring the by-laws of the Public Health Act, which regulate the position of a water-closet, under the Building Act. It was obvious that the deciding in what part of a house the water-closet should be was architects' work, and should be part of the original plan of the house; but this was not provided for in the Building Act. It was felt desirable by the London County Council, in drawing up by-laws under the Public Health Act, to include a special by-law regulating the position of water-closets. The by-laws wanted alteration, and to transfer this by-law to the Building Act would involve no radical change at all, and if that were done this small matter would become part of the district surveyor's work, and it would no longer be possible for the local surveyor to have anything to do in the matter. For a long time he had had much sympathy with Mr. Weaver's views, and he had tried to imagine circumstances under which those views could be carried out. The nearest approach he could get to it was to have the district of the District Surveyor coterminous with that of the local authority—and that would be a distinct advantage. At present it was inconvenient and awkward for a man to be in Hackney, say, as regards drains, and in Highgate as regards something else. That difficulty could only be got over by the gradual adaptation of the rules of one district to another district. As things were now, he did not think it would be possible or advisable to carry out Mr. Weaver's ideas. There must be one man to inspect the drains and another man to inspect the architectural work of the house; the work was too great to be done by one man and a superior man was required to do one part of the work. Desirous as he was to hand over this work to the local authorities, he felt bound, in giving evidence before the recent Royal Commission, to speak very much as Mr. Mathews had done.

Mr. Henry Lovegrove said he thought that Mr. Weaver had better have left the matter alone, as, if some of the District Surveyors wished, they could find many shortcomings in the Parish Surveyors of London—of repairs to pavements neglected, the scavenging badly done, as anybody could see by comparing the streets under the vestries with those under the mother of municipalities—the Corporation of the City of London. He could not understand anybody thinking that a mere acquaintance with the practical details of building construction should be preferred to an experience of many years in general practice. He thought that all the present District Surveyors had had architectural training. Surely a man skilled in taking levels, in planning sewers, was not better qualified than an architect, and he considered that the action of London vestries clearly proved that the members did not consider their surveyor qualified to undertake architectural work, as if anything in the way of designing was required an outside architect was engaged. He could not think that the County Council would ever consent to lose the management of the Building Act, and he was sure that the public would strongly object, so that the only persons desiring it were the vestrymen, who wished to increase their importance; nor could he imagine Parliament approving such a change. He could see no fault in the present system: a builder gave notice to the District Surveyor and was able to have the plans approved at once and to commence the work in two days; he then had to consult the Vestry Surveyor about the drainage—one small branch of the building. In the provinces weeks elapsed before plans could be approved, and absurd questions were discussed by the local bodies, and in many instances difficulties were raised by members who were probably rival tradesmen with the proprietor of the new building. Many provincial architects had expressed their surprise at the expeditious way in which work could be started in London contrasted with the provinces, where the Chairman of the local board might be a builder who had tendered against the successful competitor, or be opposed in business to the employer, and the by-laws were strained in every way to injure and delay the building owner. He thought that many of the Vestry Surveyors went beyond their powers (instructed by the committees) and required more information about the intended building than the law justified. Mr. Weaver had no right to state that District Surveyors neglected their duties and allowed buildings to be erected in advance of the building line, and had to be kept right by the Parish Surveyor. He could not conceive how the proposed change would prevent the erection of wooden buildings in back gardens; their name was legion, and when discovered he usually got them removed. He first requested removal within a few days (failing which he reported to the County Council), and in nearly every case the structures were removed. Mr. Weaver objected to the present system of treating dangerous structures, and as he had had as many as any District Surveyor, he defied Mr. Weaver and all his Vestry to find any fault or defect in that department of his (the speaker's) official duties, and in praising his system he should acknowledge the valuable assistance rendered by various Parish Surveyors and Sanitary Inspectors. The proposal to abolish fees would not be approved by the general public, as those who build most were professional speculators, and the fee came out of their usually large profits. In the paper nothing had been said against the integrity and honesty of the body of District Surveyors who throughout long years and many changes had been above suspicion. As to the alteration in the system of appointing District Surveyors, much could be said on both sides. It would appear that in the future inferior men might offer themselves, but the argument of some members of the Council had been that it was better to have a second-rate man who would perform the duties personally than a first-rate man who would delegate a greater part to an unqualified clerk; a modification would probably meet the views of all parties.

Mr. G. Livingstone said while he did not think that Municipal Engineers or Vestry Surveyors desired to lay claim to be architects, for which profession they had not as a rule been specially educated or trained, he yet held the opinion that the qualifications of most Municipal Surveyors were such as would enable them to discharge the duties of District Surveyor so far as they had relation to the construction of buildings under the by-laws as defined by the Building Act, or any by-laws relating thereto. It was the practice in most provincial towns for the Borough Engineer to act also as the Building Surveyor, and this arrangement he believed had been found to give satisfaction, and he saw no reason why a similar arrangement could not be carried out in London with equal advantage. He considered the argument advanced by one speaker—namely, that the Vestry Surveyors were so fully occupied with their present multifarious duties that they would be unable to devote the necessary time, even if qualified, to the duties of District Surveyor—was equally applicable to the District Surveyors themselves, who, being for the most part gentlemen of considerable private practice (some distinguished in their profession), not unnaturally devoted the greater part of their time and attention to their own interests, and, as was not infrequently the case, relegated their duties as District Surveyor to an assistant, generally the only person to be found in attendance. This being so, there was surely no reason why the supervision of buildings under the Building Act could not be equally well administered by the Municipal Surveyor, or a competent architectural assistant in his office, as it is under the present system. At all events, he was of opinion that the duties of District Surveyor should be discharged by a salaried official paid by the Local Authority, and acting either independently or under the direction of the Surveyor of the district, and that such system would be preferable in the interests of the general public to that now in operation.

Professor Roger Smith said that Mr. Weaver's paper must be taken as an expression of opinion. From beginning to end of it there was very little argument, and the reasons for the opinions appeared, on the whole, to be unconvincing. He agreed with previous speakers in thinking that professional gentlemen did not seek the office of District Surveyor with the idea of extending their private practice. He never did anything of the kind, and he believed that other District Surveyors would say the same. There was no doubt something to be said in favour of the proposed change advocated by Mr. Weaver; but was there not something more important which would be lost by the change? In the first place, men of a different standard would be almost sure to take the place of the present District Surveyor. The District Surveyors of to-day were men whose professional work had trained them to supervise the erection of buildings, and that experience was not to be gained merely by getting enough information with regard to building construction to enable a man to pass an examination creditably; nor was it to be got by making estimates for building, or by measuring up or valuing a building afterwards. It was only to be got by practice in supervising the erection of buildings, and as long as the duty of superintending the erection of buildings was put

upon a District Surveyor, he ought to be drawn from the class of men who had been engaged in work of this kind. He regretted that District Surveyors appointed now were not permitted to engage in private practice, because he thought they would get out of touch with building and be less aware of changes taking place outside their own districts, and so the work would get into the hands of those less competent to do it. In the next place, he apprehended that if the change proposed by Mr. Weaver were made, District Surveyors would lose their independence, which was so desirable, and would be directly controlled by the Local Authorities. There would be an amount of friction which certainly did not exist now, and the surveyor would be unable, as he did now, to fearlessly interfere with work going on, almost regardless of consequences. What happened in other places was not a very good guide for London, which was so large. The peculiarities of London life and buildings were different from what they were elsewhere, and even if the system worked successfully in provincial towns, it did not follow that it would in London. From some experience of building in the country, he doubted whether the system worked well there. The London system put a good class of men in very responsible positions, and he hoped that it would continue.

Mr. H. Gundry, President of the District Surveyors' Association, said it was known perfectly well that the surveyor of a Local Authority was not an independent man, and every case had to be brought by him before his committee, composed of men living in the neighbourhood, and very often the builders or the owners of the property being dealt with. He repudiated the suggestion that District Surveyors in adjoining districts favoured each other. In the London County Council report for 1897, quoted from by Mr. Weaver, it was shown that out of the 25,000 buildings erected under the jurisdiction of the County Council and the District Surveyors, only twenty-eight works were carried on by the surveyors, as architects, in their own districts. That was not enough to justify any such suggestion. The paper was conceived in a very parochial spirit, and seemed to ignore the very existence of London.

Mr. P. E. Pilditch said it would be useful to separate the paper. In the first part the author started with the assumption that the present system of building supervision was defective, and in the second part he proceeded to suggest a means of improving it. In his (the speaker's) opinion, much could be said for the first point, but he could not follow the author in his suggestions for improvement. There were several little difficulties arising from overlapping jurisdiction between the Vestry Surveyors and the District Surveyors, which he (the speaker) specified, and he thought that they could best be met by a short amending Act defining a little more clearly the duties of the two officials on these points. He agreed that it would be quite possible to find in some suburban districts men who could combine the duties of the two officials, but he did not think that would be possible in thickly-populated central districts. The District Surveyor was the proper official to have the supervision of structural matters and the administration of the Building Act, and that gentleman would not be able, he thought, to carry out the engineering duties of the Parish Surveyor. In Vestry Committees, though there was local knowledge, there was sometimes a great deal of local prejudice, and, in his opinion, the best security that an architect in London could have was to know that his work would be supervised by a statutorily appointed official and a central body like the London County Council. If Mr. Weaver's proposals were adopted, the result would be that in every Parish Surveyor's office there would be two specialists—specialist assistants: the specialist building assistant, and probably a specialist engineering assistant, and he thought that on the whole no strong case had been made out for the change proposed.

Mr. J. M. Knight said that he agreed with Professor Roger Smith's remarks, but he also agreed with some of Mr. Weaver's views. It was not Mr. Weaver's view, however, that the District Surveyor should be absorbed, but rather that the District Surveyor should absorb the office of the Parish Surveyor, and he thought there was much to be said in favour of that.

Mr. R. A. Robinson, L.C.C., said that many of the duties undertaken by the District Surveyors could be efficiently undertaken by the Parish Surveyors. The District Surveyor was not called upon to do artistic work, but what he had to do was to see that the conditions of the Building Act were complied with. At Tunbridge Wells the Surveyor had recently designed and erected some very large baths, as well as filtering beds and other works, and if he could do so other local surveyors could do the same. It must not be forgotten that a good many members of the London County Council were members of vestries, and that the present Chairman of the Building Act Committee was a Battersea builder. The argument of some gentlemen seemed to be that when sitting at Spring Gardens a member was an excellent man to appeal to, but when sitting on a Vestry he was a most unsuitable man. He thought it would be recommended in the Bill now being drafted for the improved government of London that the District Surveyor should be under the control of the Local Authority. That would simplify matters considerably.

Mr. A. King having spoken against the views of Mr. Weaver,

Mr. T. W. Wheeler, Q.C., said he thought that the changes recommended by Mr. Weaver would be made. It seemed to be generally acknowledged that the District Surveyor carried out his duties efficiently, and there was thus no necessity to enter into that. He had formed the opinion that the District Surveyor ought not to be paid by fees by the builders who, in fact, employed him. The builder regarded those fees as part of the cost of the building; that affected the rent, and that again the ratepayers. The District Surveyor should be to some extent a salaried officer of the District or Authority he represented, and his remuneration should fall upon the locality (*i.e.*, the rate) at large. As to whether the District Surveyor should be a surveyor or architect, he did not think that either the architect, who thought he should be an architect, or the surveyor, who thought he should be a surveyor, were in the least wrong; but the functionary was called by Act of Parliament a District "Surveyor."

Mr. E. W. Hudson then moved the adjournment of the debate.

Mr. W. Eve seconded, and the meeting was adjourned until February 6.

STOW'S SURVEY:

A NEGLECTED TERCENTENARY.

THE present is an age of jubilees, centenaries, and anniversarial celebrations, yet no one has thought to commemorate that in the winter time, just three hundred years ago, Stow brought out the first edition—the copies are dated 1598 and 1599—of "A Survay of London," a quarto volume of 483 pages, printed in black letter, with an appendix consisting of an account of London (then printed for the first time) written in Latin by William Fitzstephen, the lively and worldly-minded chaplain of Thomas à Becket, and eye-witness of his master's murder.

John Stow was born, 1525, in the parish of St. Michael's, Cornhill, where his father and grandfather had lived and prospered as members of the Merchant Tailors' Company, to which Stow also belonged. When about thirty-five years old he exchanged his goose and needle for the historian's pen; in 1560 he edited Chaucer's poems and published the first annual volume of his "Summary of the English Chronicles," by which time was completed the survey for the map commonly attributed to Radulph Aggas. In 1580 appeared the first edition of his "Annales." A second edition, increased to 579 pages, quarto, of the "Survey" was issued in 1603. Meanwhile he had effected a republication of Holinshed, the "Flores Historiarum," and Thomas Walsingham's and Matthew Paris's Chronicles.

Following his natural bent, Stow turned author and paid the penalty. He acquired most of his information at first-hand by toilsome journeying on foot, transcribed books he needed but could not afford to buy, and, as he tells us, his works cost him many a weary mile's travel, many a hardly-earned penny and pound, and many a cold winter's night's study. But by his painful labours, to which the sixty MS. volumes in the British Museum bear witness, he gained nothing; and at last the father of London chroniclers was fain to accept his sovereign's gracious licence to beg "within the cities of London and Westminster and the suburbs thereof," and a recommendation to those who would give him of their charity. Having suffered contumely from the ignorant, and disappointment from the praise and promises of the great, Stow died on April 5, 1605, and was buried in the church of St. Andrew Undershaft, in Leadenhall-street, close by his later home "near the well within Aldgate." His widow Elizabeth erected a monument, which shows him in his habit as he lived, seated in a recess, writing at a desk rested upon his knees. The effigy is generally described as being of terra-cotta: it is for the greater part of veined English alabaster, having a white marble plinth, and black marble in the frieze. The upper portion of the composition, bearing the Merchant Tailors' coat-arms is, in its heraldical design so similar to the corresponding features of Alderman Humble's contemporary monument in St. Saviour's, Southwark, that one may fairly ascribe the two to the same architect's, or sculptor's, hand. Maitland says (1739) that Stow's remains were removed for the interment of some one else.

In 1618 a third edition, quarto size, and in 1633 a fourth edition, folio, of Stow's "Survey" were brought out by "A. M."—Anthony Munday. John Strype published his two folio volumes in 1720; his continuators followed with their two volumes in 1754-5. Meanwhile had appeared, in 1734-5, the two volumes known as (Robert) "Seymour's Survey," based upon Stow, and compiled by one whose real name, we may mention, was John Mottley, whereof another edition was published in 1753. At the dispersal, in 1889, of the Perkins Collection was sold, for 11*l.*, a copy of the "Survey," bound in the original calf, and having the letters "Ex Dono Johannis Stow" stamped at the top of the front cover—J. Wolfe, 1598: the same volume was sold amongst the books and MSS. of E. H. Lawrence, F.S.A., at Sotheby's in May, 1892. Edmund Howes published his editions of Stow's "Summary of the Chronicles of England" in 1607 and in 1611; in 1615 he issued his expanded version of the "Annals," of which, however, a better and more valuable edition came out, under Howes's care, in 1631.

MAGAZINES AND REVIEWS.

THE illustrations in vol. v., No. 8, of the *Architectural Review* (Boston) include two sets of geometrical drawings of school buildings—the High School at Rome (New York State), by Messrs. Carrère & Hastings, and that of No. 17 Public School, Rochester (in the same State). The architectural treatment of the latter is too much inspired by that of the French Lycée—a mill-like building, only relieved by a campanile, with a rather graceful upper story, in the centre of the front. The other building is a pleasing example of plain and unpretending school architecture—not interesting, but on the other hand not prison-like, as are the Lycée and "No. 17." The United States Mint building at Philadelphia, by Messrs. Aiken and Taylor, seems like going back to the eighteenth century, of so staid and regulation a character are its simple Renaissance details; it would be a more pleasing design if there were something at each end to balance the central feature.

In the *Art Journal* the article by Mr. Ranken on "Tintagel" is rendered valuable by the opportunities it gives for Mr. F. W. Sturge's very fine sketches, which we imagine are the originating cause of the article. A paper on "The Colour-Printing of Textiles at Messrs. Wardle's Works," at Leek (by the late Mr. Gleeson White), is an interesting description of the processes employed, and is further adorned by some good patterns for textiles, designed, we conclude, "in the firm." Two articles are devoted to the works of Mr. G. H. Boughton and Mr. Sauber, the latter hardly an artist of a calibre to be made the subject of a special article, except that there must apparently be an article written about everybody nowadays.

By what seems an odd coincidence, the subject of Sir Thomas Wardle and printed textiles is treated simultaneously in the *Magazine of Art*, also with illustrations of designs. A shield designed and decorated by Professor Herkomer in enamels forms the subject of another article, with a general illustration of the shield and a good many of separate figures in detail. "Mr. Sargent as a portrait-painter" is the subject of another article. That Mr. Sargent is an ideal portrait-painter of men and women of the nineteenth century we quite

agree, only we would add—rather too much so; the eighteenth century portrait ideal, with its calm and dignity, is a finer one. "Is Photography among the Arts?" is the subject of a "Symposium" in which M. Robert de la Sizeranne leads off; we presume other debaters are to follow. M. de la Sizeranne has never photographed, and therefore is not prejudiced in favour of photography, but he seems inclined to think that it has arrived at some claim to be reckoned as an "art." He sums up—"So long as man could set no stamp of mind or individuality on the picture we were fully justified in answering 'no' to the question at the head of this article; but now it is wiser to wait and watch events, and to say meanwhile, 'It may be.'" The French critic thinks that at all events new facts have arisen in photography; which is true; but none of their results have as yet persuaded us that photography has risen to the level of an art, or photographers to the rank of artists.

The *Studio* (December 15) devotes an article to Mr. Arnold Mitchell's house, built for himself at Harrow. "Primitive Art from Benin," by Mr. Ling Roth, is accompanied by some illustrations of curious detail from this part of the world. But both in this publication and the *Artist* the great object seems to be to sprinkle the pages with illustrations of various kinds, and there is hardly any text that seems to have a definite end except to fill the margins round the drawings. We observe that among the illustrations in the *Artist* are some of "a dining-room in Russia," the treatment of which, as shown in the sketches, may interest our readers.

The *Engineering Magazine* contains an article on "Electric Lighting in Great Britain," one "On Safety in Railway Travelling," apparently by an American contributor, concerning which we will merely remark that the subject is one on which American engineers and railway managers have a good deal to learn from us and nothing whatever to teach us. Mr. T. W. Parry continues his articles on the curious subject of "Oxford from an Engineer's Point of View," which has rather more engineering interest this time. The writer, remarking on the timber roofs which cover the mediæval stone vaults, observes that he has himself constructed cylindrical vaulting on the Indian State railways, but never placed a second roof above this covering, though the rainfall in India is far heavier than in England. Among the illustrations is a plan of the roof of the Sheldonian Theatre, a plan and section of the dome framing of the Radcliffe Library, and a general section of the same building.

The English general magazines are remarkably devoid of anything of artistic interest this month, and the American magazines are still largely occupied with martial subjects and recollections in connection with the recent war. The *Century*, besides an article on the proposed Nicaragua Canal, has a short protest entitled "A Word in Favour of the Panama Canal," pointing out that the latter is already partly made, and is in the hands of a company who evidently intend to finish it; that it is much shorter than the Nicaragua route and has better natural harbours at each end; *ergo*, that if both are made, it seems likely that the Panama will take away all the traffic from the other. In *Scribner* Mr. Russell Sturgis, under the heading "The Field of Art," writes a short article on "Mural Paintings in American Cities," appending a list of the existing ones, which is of surprising length. It may be doubted whether we can show anything like it in this country.

The *Antiquary* contains an interesting communication on "The Repair and Re-seating of a Parish Church, A.D. 1605," with a great many extracts from the accounts connected therewith. The church is that of Chesham (Bucks), which possesses a special record of this work in a manuscript folio volume.

The *Essex Review* (quarterly) is an interesting number in itself, but deals with no architectural subjects. There are some notes on a thirteenth century inscription cut on a stone in Fobbing Church, with a facsimile.

In the *Revue Générale* M. A. Goffin continues his essay on the art of Florence, with some excellent though small illustrations. His remarks on the peculiar effect of the blending of the Gothic and the Classic spirit in the mediæval churches are in a good style of architectural criticism.

Among the contents of *Knowledge* is a special article on Saturn, with a large illustration of the planet and some diagrams of different aspects of the rings. This piece of celestial architecture is always of interest.

We have received the *Genealogical Magazine*, the *Churchman*, and the *Quarry and Builders' Merchant* (the new title of the *Quarry*), the *Gentleman's Magazine*, and the *English Illustrated Magazine*.

SANITARY INSPECTORS' ASSOCIATION.

THE annual address of the President (Sir John Hutton) of this Association was given on Saturday at Carpenters' Hall, London Wall. Among the leading points adverted to in the address (after references to the increase of membership to 685, and the proposed visit of the Association to Lincoln, and at some not distant date, to Belfast) was the continued diminution of the death-rate in the metropolis, in spite of many special difficulties of sanitary administration, in a community in which 4,484,727 persons are congregated. Of the forty-three sanitary districts of the metropolis the largest, Islington, contains a population of 341,134, a number sufficient to form a line extending from Euston to Manchester, if they joined hands. Lambeth with 300,000 and Camberwell with 257,000 were almost equally colossal. The metropolitan death-rate, 19·4 for 1897, was lower than in Manchester, Liverpool, Birmingham, Sheffield, Leeds, and other large towns, and the improvement at typical ages, such as under one year, at twenty and at sixty-five might, he thought, be fairly attributed to sanitary improvements. The crowded courts and alleys of the metropolis afforded an almost unequalled opportunity for the spread of zymotic diseases, like small-pox, scarlet fever, diphtheria, &c., but the figure in London, 2·58 per 1,000, was lower for these diseases than that of most of the large provincial towns. There was now a satisfactory prospect that every parish would have its own dust destructor. With properly-constructed refuse destructors little inconvenience was experienced, and in those cases where provisional electric lighting orders had been prudently retained by vestries a proportion of the generating power would be obtained from the refuse itself.

With regard to the constitution of the proposed Sanitary Inspectors' Examination Board, a matter that was at present before certain public departments, it would not be prudent to say more than that they had some hope that the reasonble proposals of the Council of the Association would be accepted, and an injustice be averted. Other points touched upon in the address were the provision of public abattoirs in place of private slaughter-houses, cremation, and the promotion of a Bill in Parliament for the superannuation of sanitary officers.

A vote of thanks was cordially given to the President on the proposal of Mr. Moss Flower, Chairman of the Council, seconded by Mr. G. T. Dee, and supported by Messrs. W. H. Grigg, H. Thomas, H. Alexander, W. W. West, Young, and Fairchild. These inspectors, in the course of their remarks, made practical suggestions or offered criticisms on several of the points raised in the address. In order to alleviate the burden upon the ratepayers of making the necessary improvements from time to time, it would be an advantage to revive the Coal and Wine Dues, and to tax land values. Not the slightest advantage had accrued to the people from the abolition of the former, while, as regards the latter, there were persons in many poor districts deriving enormous revenues from ground rents who never laid a brick or contributed a penny to the local burdens, and who never even visited the districts from which their wealth was derived. In one district at least (Battersea) the refuse destructor had been worked at a loss, and was now closed. It was found that the dust could be more advantageously disposed of to the brickmakers. With regard to the low death-rate of London, it was pointed out that the figures were somewhat misleading. London was constantly importing from the country strong vigorous young men and sending its invalids and old people back to the country or the seaside to end their days. The rates as stated were consequently hardly a fair measure of the healthiness of London. The President's views as to cremation and funeral reform were generally supported.

In acknowledging the vote of thanks, Sir John Hutton replied to some of the criticisms. He admitted that the health statistics might be to some small extent open to the objections referred to, but could not admit that there was danger of too much inspection or of being over-regulated. As an example of the benefit of strict inspection, the President stated that the practice formerly common of short weight being given by itinerant coal vendors had been nearly stamped out. Instead of the many hundreds of annual convictions common nine years ago there were last year but twenty-five. It could hardly be held that a community was over-regulated where they had only one policeman to every 400 persons.

Correspondence.

To the Editor of THE BUILDER.

THE BAR GATE OF SOUTHAMPTON.

SIR,—In commenting on the proposed destruction of the Bar Gate (which, by the way, is not likely to take place, the feeling in the town being too strong against it) you add the remark, "Southampton in itself is not very interesting."

I must say this remark is rather surprising; but I am afraid it is an opinion which is held by many people; allow me to take exception to it and to point out that the town is full of historical and antiquarian associations. A large portion of the old town walls, the original fortifications of the place, probably erected in the tenth or eleventh century, still remain, and always excite the interest and curiosity of strangers. Three of the original old town gates—of which, of course, the Bar Gate is the most important—still stand. St. Michael's Church has still traces of Norman (some would say Saxon) work in its interior; and directly opposite this is as picturesque an old house, constructed of timber and plaster, as you will find in any part of England; this is traditionally said to be the house Henry VIII. took up his residence in when visiting the town.

Besides these interesting relics of the past (and, by the way, I have omitted to mention the palace of King John, which still remains in a good state of preservation) there are several very interesting old interiors which are worth coming some distance to see.

St. Denys' Priory, although now only a fragment, still stands on the outskirts of the town, and the outline of an Early English window and doorway can easily be traced.

And it cannot fail to be of interest to your readers to know that the town possesses a church erected from the designs of Reveley, a pupil of Sir William Chambers; this is an important feature of the High-street, and has all the classic dignity that one might expect from the pupil of so illustrious a master.

Southampton residents take a great pride in their interesting relics of the past, and visitors are constantly discovering for themselves new objects of interest in the town.

R. CROPTON, JUN.

Southampton, January 7, 1899.

OLD VAUXHALL BRIDGE.

SIR,—This work, by Messrs. Walker & Burges, the details worked out by Messrs. Hunter & English, was founded by "Caissons," also old Westminster Bridge by the Swiss engineer, Labilye, and Blackfriars by Mylne, where the platform of the floating caisson was bedded on bearing piles. At Westminster none were used, resulting in a bending up of the pier platforms. This was illustrated in Sir Fredk. Pollock's Paper (who was engaged on the works) in the minutes of the Inst.C.E.

Whether piles were used under the Vauxhall caissons will soon be shown.

J. W. REDMAN, M.Inst.C.E.

BOOKS RECEIVED.

CABINET-MAKING FOR AMATEURS. By Various Hands. Edited by J. P. Arkwright (L. Upcott Gill).

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—This Society has issued the programme of its forty-first session, which commences on Thursday, January 19. The papers to be read during the session include one by Mr. T. R. Spence on "The Elements of Design in Painting" (February 16); one by Mr. P. H. Newman on "Some Goldsmiths and Their Work" (April 13); and one by Mr. Henry Hewkley on "Lithography—Past and Present" (May 18).

NEW PUBLIC OFFICES, CARDIFF.—The Commissioners of Her Majesty's Works and Public Buildings will promote a Bill during the next Session of Parliament for acquiring a site for the erection of a County Court and Inland Revenue and other public offices in St. Mary's parish, Cardiff. The scheduled site is bounded by Park, Havelock, and Scott's streets, and, on the remaining side (south), by property belonging to Mrs. Crawshay.

The Student's Column.

ARCHITECTURAL HYGIENE.

II.—SANITARY LEGISLATION.

THE principal enactments that refer to restrictions and regulations for buildings are as follows :—

I. THE PUBLIC HEALTH ACT, 1875.
II. THE VARIOUS FACTORY AND WORKSHOP ACTS.
III. THE METROPOLIS MANAGEMENT ACT, 1855.
IV. THE PUBLIC HEALTH (LONDON) ACT, 1891.
V. THE LONDON BUILDING ACT, 1894.
VI. LOCAL ACTS AFFECTING DIFFERENT DISTRICTS.

I. THE PUBLIC HEALTH ACT, 1875, consolidated and amended the previous Acts relating to Public Health in England, but it does not refer to the Metropolis. Amongst the more important provisions of this Act the Sanitary Authorities must require a proper drain to every house, and this must be done before it is occupied ; there must be an efficient closet or privy, and eaves gutters, and rain pipes may be ordered to be provided. No cellar may be used as a dwelling unless at least 7 ft. in height, 3 ft. of which is above the level of the street. Under this same Act the Local Authorities are entitled to make by-laws ; and the Local Government Board issued a set of Model By-Laws for the guidance of the Urban Sanitary Authorities. The by-laws made by the Authorities vary in different districts but are modelled on those brought out by the Board. The following are some of the principal provisions contained therein relating to buildings, &c.

1. *Refuse.*—The owner of any premises shall at least once a week remove the house refuse from such premises ; and shall cleanse every earth closet which has a movable receptacle for fœcal matter, and also every privy, once every week ; and shall cleanse once in every three months every earth closet with a fixed receptacle.

2. *Foundations.*—Foundations are not to be made on putrid ground, and the whole site is to be covered with 6 in. of cement concrete, or to be asphalted, and a 3 in. clear space is to be left between the concrete and the underside of joists, ventilated with air-bricks.

3. *Low-lying Sites.*—Finished levels of low-lying sites to be made up with proper materials to a specified datum level.

4. *Walls.*—New buildings to have external walls of properly bonded bricks, stones, or other incombustible material ; and hollow walls to be properly bonded. All walls to have proper footings projecting half the thickness of the wall on either side, and the depth to be two-thirds the thickness of the wall ; external and party walls are also advised to be carried above the roof to lessen fire risks. Every wall is to have a proper damp course of impervious material. No wood plugs or bond timbers, &c., are to be put in party walls ; and every girder is to have a proper template of its own full width, and every bressummer to have at least a 4-in. bearing at each end on a pier or story post.

5. *Chimneys.*—All chimneys to be built on a proper foundation or corbels, and the latter not to project more than the thickness of the wall. Unless flues be lined with fireproof piping, they are to be pargetted. Those used for trade to be surrounded with brickwork 9 in. thick for a distance of 10 ft. above the floor where the furnace is situated. Every chimney opening to have a proper arch and chimney-bar. No chimney jamb to be less than 9 in. wide ; no with to be less than 4½ in. Flues are not to be carried up higher than six times the least width of chimney above the level of the highest point of the roof.

6. *Roofs.*—Roofs to be covered with incombustible materials, excepting as to frames and skylights, &c. Water from roofs to be discharged into gutters and stack-pipes.

7. *Open Spaces.*—No part of the front wall of any building except the porch, gate, &c.. to be nearer than 24 ft. from the opposite side of the street, except a fence or wall not exceeding 7 ft. high. The minimum open space at the back of any building to be 150 square feet above the level of the ground ; a closet and ashpit, however, may be above this level. The depth of such space to be not less than 10 ft.

8. *Windows.*—Each room to have at least one window opening directly to the open air. Windows to be at least one-tenth of floor area and half of this must be made to open. A habitable room without a fireplace to be ventilated by an opening carried into the open air not less than 100 square inches in area.

9. *Drainage.*—The subsoil is to be drained if necessary. The lowest story to be above the level of the sewer. Drain pipes are not to be less than 4 in. in diameter, and to be laid on concrete with a proper fall and with water-tight joints ; if they are laid under a building they must be bedded in concrete ; no right-angled junctions may be used and all drains must be properly trapped from the sewer. A *sewer*, as distinct from a *drain*, is that which contains branches from more than one house, and is made by (or acquiesced in by) the Local Authority. The importance of this distinction lies in the fact of the responsibility of the occupier of a house for the drain and of the Local Authority for the sewer. The house drain is to have two untrapped openings for ventilation, one at the lowest end and one at the highest. If one water-closet on the ground floor is not more than 10 ft. from the trap there is no need to ventilate the latter. No ventilation inlet to a drain is to be within a building. No trap is to be placed between a soil pipe and a drain pipe. Waste pipes are to discharge into the open air 18 in. away from the grating.

10. *Closets and Privies.*—One wall of every closet must be external, and must have an external window. The water-closet water supply must have a separate cistern or flushing apparatus from the house supply. The water-closet must not have container or D trap. Earth closets to be outside dwelling houses and to have dry earth receptacles. Fixed receptacles to be easily accessible for cleansing and not larger than 40 cubic feet, and not to receive rain or waste water, and to be above the level of the ground (movable receptacles may not contain more than 2 cubic feet) ; privies to be 6 ft. from any building and 40 ft. from any well or spring, and to have means of access without carrying the soil through the building, those with fixed receptacles not to contain more than 8 cubic feet, and no part to communicate with any part of a drain.

11. *Ashpits.*—No ashpit is to be within 6 ft. of a building, or 30 ft. of a well, and is not to contain more than 6 cubic feet. It should be constructed of brick or stone, and be 3 in. above the level of the ground and have an impervious floor. It must not communicate with the drain.

12. *Cesspools.*—Cesspools should not be within 50 ft. of a building or 80 ft. of any well or spring ; they should have access for cleaning without passing through any building, and must not be connected with any drain. They should be built of 9 in. brickwork in cement and rendered inside with cement, puddled all round with clay, and properly domed over and ventilated.

13. *Notice.*—Plans for new buildings or drainage works should be submitted to the Local Authorities, with descriptions of the materials, &c., to be used, and the sizes, depths, and inclinations should be figured thereon and the method of ventilation described ; and the house should be certified before being occupied. All work done in contravention of by-laws to be removed, altered, or pulled down.

II. THE VARIOUS FACTORY AND WORKSHOP ACTS.—These Acts are too numerous even to mention. They regulate the sanitary conditions of such premises as their titles imply, and give power to the Home Secretary to enforce special rules for the several kinds of manufacture. They require an air space of at least 250 cubic feet per head, and provide for efficient ventilation of these premises.

We will now deal briefly with the principal acts affecting the Metropolis only.

III.—THE METROPOLIS MANAGEMENT ACT, 1855.—Under this Act no drains are to be made except to the satisfaction of the Vestry or District Board, and the latter Authorities are empowered to inspect existing drains, privies, and cesspools, and to order the amendment of the same. In case of an alteration to a building which will temporarily affect the footway, a proper hoarding must be erected and a license for the same must be obtained from the Local Authority.

IV.—THE PUBLIC HEALTH (LONDON) ACT, 1891.—This Act includes the most important provisions of the Public Health Acts and Infectious Diseases Acts with many important additions. It prohibits the establishment anew of offensive trades, requires the licensing of cow-houses and slaughter-houses, demands that furnaces and steam vessels do consume their own smoke, provides for the cleansing of bake-houses and provides for the inspection and regulation of dairies. The *London County Council* are bound to make by-laws with regard to :—

i. The removal and disposal of refuse.

ii. Water-closets, earth-closets, ash-pits, cesspools, &c., and the proper accessories thereof in new or old buildings.

The *Sanitary Authorities* must make by-laws with respect to :—

(a) The efficiency of flush to water closets.

(b) The freedom from pollution of tanks and receptacles of drinking water.

The *Sanitary Authorities* have also to observe and enforce the by-laws made by the London County Council.

The *London County Council By-Laws* contain the following modifications of the *Model By-Laws* previously referred to :—

1. *Refuse.*—Where daily removal is inaugurated the householder must deposit refuse in a movable receptacle on the kerbstone.

2. *Closets.*—There must be a window at least 2 ft. square in the external wall. A closet may not be approached directly from any room used for human habitation. The pipes and unions connecting any water-closet with flushing apparatus to be at least 1¼ in. internal diameter. If more than one water-closet be fixed to a soil pipe the traps of such water-closets to have anti-siphonage pipes of nor less than 2 in. internal diameter ; such pipe not to be connected to the soil pipe till it is carried above the topmost water-closet.

3. *Soil Pipes.*—All soil pipes to new buildings must be fixed outside such buildings, and this must be done, if possible, when refitting a soil pipe to an existing building. When such pipe is carried within any building, it must be of drawn lead or of heavy cast iron of specified weight, and with caulked lead joints. No soil pipe to be of less diameter than 3½ in., and it must be carried up undiminished in diameter to the highest part of the roof, and must be 3 ft. higher than, and not within 20 ft. of, any window. The connexion of all lead and iron pipes and traps must be made with a brass thimble with a wiped or overcast joint and caulked with molten lead to the soil pipe or drain. No waste pipe (except that from a urinal) to be directly connected with any soil pipe.

4. *Cesspools.*—Any cesspool must be at least 100 ft. distant from any dwelling, and it must be cleaned out every three months.

V. THE LONDON BUILDING ACT, 1894.—This Act consolidated and amended the enactments relating to buildings in London. The following modifications of the model by-laws are important :—

1. *Low-lying Sites.*—No building to be erected on a site which is below Trinity high-water mark (*i.e.*, 12 ft. 6 in. above Ordnance datum), and which cannot be drained by gravity into an existing sewer.

2. *Roofs.*—Means of access must be provided to roof. The slopes of various roofs are regulated. Not more than two stories allowed in the roof of domestic building. A story above 60 ft. from street level and made in the roof, shall be of incombustible material.

3. *Open Spaces.*—The angle of 63½ deg. is drawn from the rear boundary at the same level as the front pavement, and no part of a new domestic building is allowed to project beyond such line. With respect to domestic buildings to be erected in a street laid out before the commencement of the Act, the angle of 63½ deg. must be taken from the rear boundary, but may start 16 ft. above the front pavement level. The front wall of a building not to be nearer than 20 ft. from the centre of the roadway.

4. *Height of Buildings.*—No new building to be of a greater height than 80 ft., and in streets laid out since August 7, 1862, no new building to exceed in height the distance from its front wall to that of the building opposite.

5. *Habitable Rooms.*—Every room to be at least 8 ft. 6 in. from floor to ceiling, except those in the roof, which must be at least 8 ft. high, but in the latter case such height need not be more than half the area of the room. If a room is over a stable, the floor is to be pugged 3 in. deep, and the under side of joists are to be ceiled with lath and plaster.

6. *Hard Woods.*—Oak, teak, and other hard

woods are recognised as fire-resisting materials when they are 2 in. thick.

7. *Separation of Buildings.*—Every building over ten squares in area and used partly for trade or manufacture, and partly as a dwelling-house, the former is to be divided from the latter by fire-resisting structures.

8. *Flats, &c.*—In buildings constructed to be used by more than two families, the staircases to be ventilated on every story, directly into the external air.

VI. LOCAL ACTS AFFECTING DIFFERENT DISTRICTS.—These Acts relate principally to the larger towns, and are framed to suit their various requirements.

They do not, as a rule, relate to buildings, but give special powers to Authorities for public works, sewerage, and water-supply, &c.

GENERAL BUILDING NEWS.

NEW CHURCH, CAMBOIS, NORTHUMBERLAND.—On the 31st ult., the Bishop of Newcastle dedicated the new church (St. Andrew's), which has been erected at Cambois. The new church is a brick building, with stone ornamentation, and having accommodation for some 200 persons. The church has been erected by Messrs. Carse & Sons, of Amble, from plans by Messrs. Hicks & Charleswood, of Newcastle.

CATHOLIC CHURCH, KINGSTON-ON-THAMES.—The Roman Catholics of Norbiton and Kingston Hill who worship at St. Agatha's (temporary) Church have been enabled to go forward with the erection of a new church, which is being erected on a site adjoining the existing St. Agatha's School Church. The plan comprises a nave and sanctuary, terminating in a semi-circular apse. The church is placed north and south, the site necessitating the entrance being from the south, facing Wyndham-road. There are east and west aisle, and door from the presbytery, and door for arches opening into the sanctuary. The sacristy is on the east side, having a direct entrance into the aisle and door from the presbytery and door for the use of the acolytes from the side porch. Opening from arches in the wall of the east side are two chapels; at the south side of one of these chapels is an archway opening into the baptistry, which is semi-circular on plan, with semi-domed roof. Three windows light the baptistry. The principal entrance, facing Wyndham-road, is at the south end of the nave, and has a deeply recessed porch with wide arched doorway. In the semi-circular panel over the doorway it is intended to have a sculptured figure subject in high relief. The porch has cornice and pediment over. Over the porch is a large circular window, and the main gable above has a moulded cornice and pediment, in the centre of which is a niche for the statue of St. Agatha. Crosses of the early Christian type surmount the west gable and porch. The church derives its light from the twelve semicircular-headed windows in the clearstory. The two chapels are each lighted by semicircular-headed windows with circular windows over. Over the inner porch of the principal entrance, and approached by a staircase at the side, is the gallery for the use of the choir only. The nave, sanctuary, and chapels have stone columns with carved capitals. Two arches, the full width of the nave, springing from foliated capitals, divide the sanctuary from the nave and mark the opening of the apse. The roof of the nave and sanctuary are segmented in shape, boarded and panelled on the soffit with moulded cornice. The chapels have similar roofs, while the roof of the apse is a semi-dome. The internal dimensions are as follows:—Length of nave, sanctuary and apse, 95 ft. 6 in.; the width of nave and aisles is 46 ft. 6 in.; and the width of the chapel is 10 ft. The walls are faced externally with best red facing bricks; the cornices, pediments, arched window heads, and the strings are in moulded stone. The floors are laid with wood block flooring on bed of cement concrete 6 in. thick. The church is to be heated by hot air by Messrs. Grundy, the heating chamber being under the sacristy. The roofs are to be covered externally with green Welsh slating. The architect is Mr. John Kelly, of Regent's Park, London, and the contractors are Messrs. Goddard & Sons, of Farnham and Dorking. The church will be lighted by electricity, the installation and fittings being included in the contract, which amounts to 5,495*l.* The quantities were taken out by Messrs. Northcroft, Son, & Neighbour, surveyors, of Charing Cross.—*Surrey Comet.*

HALL, BAPTIST CHURCH, BENWELL, NORTHUMBERLAND.—A Baptist Church hall has just been erected in Buddle-road, near Elswick Railway Station. Messrs. Badenoch & Bruce were the architects. The whole scheme consists of church with naves, aisles, and transepts, having side and end galleries, and seated for 750. The choir and baptistry are placed behind the pulpit, with organ chamber on one side and minister's and deacon's vestry adjoining them, the hall being beyond. The principal entrance to the church will be at the west end, and advantage is taken of the fall of the site to place the caretaker's house and class-rooms under the church and hall. The hall is seated for 250, with two class-rooms on the same floor, and in the basement there are infants' class-room for 100, class-room or tea-room for 50, and heating chamber, &c. The ventilation is by Sherringham inlets and Cousland & Mackay's concealed roof extract ventilators, and the heating is by low-pressure hot water. Mr. N. W. Maughan is the contractor, and Emley & Sons are the heating engineers. The Gateshead Stained Glass Company, Limited, have supplied the lead glazing.

PROPOSED RESTORATION OF ST. DAVID'S CATHEDRAL.—It is proposed to raise a fund for the restoration of St. David's Cathedral. The present structure was commenced by Peter de Leia about the year 1180. During the time of Bishop Thirlwall, and subsequently under the direction of Sir Gilbert Scott and his son, Mr. Oldrid Scott, who is to be entrusted with the completion of the work, very extensive restorations were carried out; but these did not extend to the eastern group of buildings, which are now in a ruinous condition. The restoration of the eastern buildings, which will cost, it is estimated, not less than 12,000*l.*, is intended as a memorial to the late Dr. Basil Jones and Deans Allen and Phillips.—*Birmingham Post.*

NEW CHURCH, CARDIFF.—A new "Bible Christian" church and schools was opened last week in Cowbridge-road. The buildings comprise a chapel to accommodate about 625 worshippers, with vestry and small library attached—also two school-rooms, each 46 ft. by 25 ft., with kitchen and lavatory accommodation, and a caretaker's cottage. The buildings are built of local stone shoddies with Corsham Down stone dressings, in the Early English style of Gothic architecture. The internal woodwork is pitch pine, the roof boarding being left unvarnished. Mr. S. Evans, West Smethwick, supplied the lead lights. Messrs. John Williams & Sons, of Cardiff, arranged the gas lighting, the fittings being by Messrs. Stott & Co. and by Messrs. T. Brawn & Co., of Birmingham. The contractors were Messrs. Knox & Wells, of Cardiff, who carried out the work at a cost of about 4,100*l.* Messrs. Veall & Sant were the architects.

SUNDAY SCHOOL, PUDSEY.—A new Sunday school in connexion with the Mount Zion Methodist New Connexion Chapel, Fartown, Pudsey, was opened recently. The building has been erected on the site of the old school and the surrounding land. It consists of a central hall 66 ft. by 35 ft., with ten class-rooms, five on each side, measuring about 11 ft. by 10 ft. each. At the south-east end is an infants' room 24 ft. by 15 ft., adjoining which is another class-room 15 ft. by 12 ft., and a kitchen 15 ft. by 12 ft. In the basement is a room 32 ft. by 15 ft., to be used as a young men's institute, besides a heating chamber, &c. Four entrances have been provided for the main room, at the south-east end of which is a platform, so arranged that the adjoining rooms can be utilised as ante-rooms. The internal fittings are of varnished pitch pine throughout. The school and class-rooms are heated with hot water on the low-pressure system. The building, which is in a simple Renaissance style, has been erected from the designs and under the superintendence of Mr. Herbert Hodgson, architect, Bradford and Pudsey, by the following contractors:—Mr. John Ambler, Pudsey, masonry; Mr. Richard Farrer, Pudsey, joinery; Mr. Fred Thompson, Stanningley, slating; Mr. A. Taylor, Eccleshill, plastering; Mr. Joseph Scarth, Pudsey, plumbing; Mr. Samuel Walker, Pudsey, painting; Mr. B. Johnson, Pudsey, heating apparatus; and Messrs. J. Waddington & Sons, Bury, ventilators.

SCHOOL BUILDING IN GUERNSEY.—A new school is to be erected at St. Peter Port, Guernsey, and at a session of the State Assembly on the 28th ult. the plans prepared by Messrs. Colson, Farrow, & Nisbett, architects, of Winchester, and submitted in competition with several others, were adopted.

PETER SYMONDS' SCHOOL, WINCHESTER.—These schools are to be erected on a site which is close to the London and South-Western Railway station. The contract has been given to Messrs. Fielder & Son, of Winchester, for carrying out the works in accordance with the plans of Messrs. Chancellor & Hill, architects. The works included in the present contract comprise only a portion of the design for the completed scheme. This scheme comprises a central hall, 69 ft. long by 35 ft. wide, with eight class-rooms opening out of it, four on each side. At the north end of the central hall there will be a raised stage for use on public occasions. There will also be provided a dining-room for the scholars, lavatories, and cloak-rooms, room for the head-master and assistant masters, porter's office, &c. All these will be on the ground floor. On the first floor there will be chemical and physical laboratories, lecture theatre, and board room. In the first portion of the scheme the large central hall and five of the class-rooms, and a portion of the masters' quarters will be omitted. The ventilation and warming of the buildings will be carried out by Messrs. Haden & Son, engineers, Trowbridge. The first portion of the scheme will also include a manual instruction room, afterwards to be converted into a cloak-room for pupils. The main frontage of the building, which has a total length of 150 ft., will face south south-east, standing on the highest portion of the site, with the playgrounds in the front of it, care having been taken to leave behind the main buildings sufficient space to erect detached buildings for technical classes, which it is expected will ultimately be included in this scheme. The building is designed to be built of red brick, with Bath stone dressings to the doors, windows, and angle quoins. The completed scheme will provide accommodation for 300 scholars, the first portion of the building being intended to accommodate about half that number.

NEW SCHOOLS, LONGTON.—On the 9th inst. new schools were opened in Queensbury-road, Longton, Staffordshire. From the designs of Mr. T. P. Hulse, the new buildings have been erected by Messrs. Tomkinson & Betteley, the total cost being nearly 15,000*l.* Accommodation is provided for 1,050 scholars.

NEW BLOCK, PORTSMOUTH ROYAL SAILORS' REST.—On the 30th ult. the new block, built as an addition to the Royal Sailors' Rest at Portsmouth, in commemoration of the Queen's Diamond Jubilee, was opened by the Empress Frederick of Germany. The new building faces the back of the older block in Chandos-street, Landport, and the intervening roadway is spanned by a 30 ft. covered bridge. There are five stories, including four dormitory floors, as well as ground floor. In the basement a bicycle store is being fitted, and a part will probably be devoted to additional lockers. On the ground floor are a number of bedrooms, and a room which will be used for needlework purposes. There are 112 cabins in the block. This will bring the total number of beds to about 450. The new building was designed by Mr. Snell, of Plymouth. The builder is Mr. J. H. Corke, of Southsea.

EXTENSION OF ABERDEEN FISH MARKET.—The plans by Mr. R. G. Wilson, architect, Aberdeen, for the extension of this market along South Market-street—which were approved at the last meeting of Aberdeen Town Council—show that the building will be 426 ft. long by 36 ft. 6 in. wide, and will be set back 10 ft. from the edge of the wharf, leaving the entire width of street alongside the market 96 ft. The cost, exclusive of foundations, is estimated at 5,000*l.*

WAREHOUSE, GLASGOW.—A new warehouse is to be erected for Messrs. Pettigrew & Stephens in Sauchiehall-street, for which plans have been prepared by Messrs. Honeyman & Keppie, architects. It will occupy the whole of the ground from West Campbell-street to the Fine Art Galleries. The warehouse will be five stories in height, with an additional attic. It will be built of white sandstone, and the dome is to be covered with lead.

BUSINESS PREMISES, BISHOPSGATE, E.C.—New business premises have just been erected at 5 and 6, Bishopsgate-street Within, for Messrs. Bull & Sons. The present structure consists of over forty rooms, those above the ground floor being let as City offices. Messrs. Patman & Fotheringham, of Theobalds-road, are the builders, and the architect is Mr. G. Vickery, of Gresham-street. The shop fittings have been supplied by Messrs. Spreckley & Co.

HOTEL ENLARGEMENTS, HARROGATE.—The "Crown" Hotel, Harrogate, is now undergoing alterations and additions, under the direction of Mr. W. J. Morley, architect. The exterior of the new block, which will face the Royal Baths in Montpelier-road, will be of stone, having a tower at the angle joining up to the present building and an ornamental gable. The entrance hall and lounge will be 42 ft. by 32 ft. From this hall there will be a passenger lift to each of the upper floors. A dining-room will be constructed, 63 ft. by 58 ft., with oak wainscotting round, broken up by marble pilasters, with an ornamental panelled ceiling and marble columns supporting the same. New billiard and smoking rooms are to be provided. Lavatories and cloak-rooms are to be arranged, and the walls and floors of these places will be tiled. A recreation and ball-room is also arranged, with stage and ante-rooms at one end, and a winter garden at the other. A gentleman's needle bath, with dressing boxes attached, is provided in the basement, and with lavatory accommodation adjoining. The kitchens will be enlarged and improved. The public billiard-room will be enlarged to accommodate another table, and new lavatory accommodation provided adjoining thereto. The oldest parts of the present house will be pulled down, and about fifty new bedrooms provided. A new laundry and wash-house is to be built, and servants' bedrooms provided in the same block, and apart from the main building. The building is to be warmed throughout by hot-water radiators, &c.; fire appliances will be provided on each floor, and fire escapes at different points. The drainage is to be entirely new. Provision is also made for stabling bicycles. All the rooms will be lighted with the electric light.

ALTERATIONS, &C., THE WOOD MEMORIAL HALL, NEWCASTLE-ON-TYNE.—Some works of alteration and redecoration have just been carried out in connexion with this building. The contract for the woodwork and other alterations has been carried out by Mr. Nicholas Maughan, and the decorations are by Mr. Laidler. The architect for the whole work is Mr. Cackett, of Newcastle.

LUNATIC ASYLUM, CHADWELL HEATH.—At the West Ham Town Hall, recently, a Local Government Board inquiry was conducted by Mr. E. A. Sandford Fawcett, A.M.Inst.C.E., into the application of the West Ham Town Council for sanction to borrow a sum not exceeding 300,000*l.* for the erection of the new lunatic asylum at Chadwell Heath; 16,000*l.* with which to build a fire-station and fire-

men's dwellings in Barking, and 2,000*l.* for defraying the cost of erecting an underground convenience at the junction of Sebert-road and Woodgrange-road, Forest Gate. Mr. Lewis Angell is the Borough Engineer.

ARCHIEPISCOPAL PALACE, CANTERBURY. — The tender of Messrs. Barker, of London, for 18,967*l.*, for the erection of the archiepiscopal palace in the Precincts, Canterbury, as a permanent residence of the Archbishops of Canterbury, has been accepted. The architect is Mr. W. D. Caröe, of Whitehall-place.

WESLEYAN CHURCH, NEWPORT.—Commercial-road Wesleyan Church, Pillgwenlly, Newport, Mon., has been rebuilt upon modern lines. The reconstructed edifice has an open-timbered pitch-pine roof. In the matter of light, an improvement has been made by the addition of five lead-light windows. A new school-room is erected, with pastor's vestry and offices. The room is built of pennant stone and white stone dressings. The interior is surrounded by six class-rooms, the whole affording accommodation for 750 scholars. The electric light has been installed, and there is a new heating apparatus on the low-pressure system. The total cost is 2,000*l.* The architects were Messrs. Habershon, Fawckner, & Groves, and the contractor Mr. Edwin Richards.

LECTURE HALL, BIRKENHEAD.—A new lecture hall and school buildings in connexion with the Wesley Chapel, Birkenhead, were opened on the 4th inst. Accommodation is provided for over 700 children, the cost being about 3,000*l.* The contract has been carried out by Mr. James Merritt from the designs and under the superintendence of Mr. T. W. Cubbon, architect, of Birkenhead.

HOTEL, CRUDEN BAY, NEAR PETERHEAD.—A new hotel is being erected at Cruden Bay, near Peterhead. It is Baronial in style, and is being built of red Peterhead granite, with dressings of Kemnay granite. It consists of a centre block of five stories, with two projecting wings at the back; and in the building, which has a frontage of 118 ft., are ninety-eight bedrooms, with coffee and breakfast rooms, dining-room, drawing-room, parlours, writing-rooms, billiard-room, and accommodation for a large staff of servants. A special feature is the provision that has been made for golfers. Those coming to reside at the hotel are to be conveyed from the station to the hotel in an electric tramway. The contractors for the hotel are—Mason work, Mr. Edgar Gauld; painting and decorating, Messrs. Garvie & Sons; plaster and tile work, Messrs. Roger & Baxter; plumber work, Messrs. Blaikie; grates, Messrs. Duncan & Co.; cooking apparatus and range, Mr. Charles Mitchell; patent glazing, Messrs. Helliwell, Brighouse; heating, Mr. Robert Tindal; electric bells, Mr. Middleton; tiling and sanitary fittings, Messrs. Doulton & Co. Mr. P. M. Barnett, the engineer-in-chief, has been consulted in the various departments of the works throughout. The general management and superintendence of work and the preparation of the designs have developed upon the Company's architect, Mr. John J. Smith. Mr. Thompson has acted as inspector of works; while the electric lighting has been carried out under the supervision of Mr. Pickersgill.

HYDROPATHIC BUILDING, CALLANDER, PERTH.—The re-erection of the Callander Hydropathic has now been completed, and the building has been opened. The structure is of white sandstone, the overhanging oriel windows being finished with half-timbered gables, boldly treated. The corners are carried up as towers, the upper stories framed in half timber construction, with projecting balconies. The building is four stories in height, and an attic story at the back, which contains the servants' apartments. From the portico the entrance-hall is reached. This apartment is panelled in wood, with a mosaic floor. On two sides are arranged the office, luggage-room, and the gentlemen's cloak-room. Through double glass doors access is got to a short main corridor, on the right of which is the manager's room and ladies' cloak-room; on the left is the luggage-room, the service staircase—a stone stair leading to every floor in the building—and the main stair, which is also of stone, leading to the upper floors. Through an archway the main corridor in entered, extending from end to end of the building, 156 ft. long by 12 ft. wide. On the right hand side of this corridor are placed the public rooms, consisting of drawing-room, library and reading-room, dining-room, with service-room, billiard and smoking-room. Along the entire front of this floor is a projecting balcony. From the centre of the main corridor a short corridor leads to the recreation hall and ante-room. This hall is fitted up with a stage and accessories for entertainments. Towards the west end of the main corridor, entrance is obtained to the west wing of the building. This wing contains a second main stair, leading to the upper floors. The two upper floors of the building, reached by both staircases, contain sitting and bed rooms. On the ground floor is situated the working department of the house and the baths. The latter consist of private baths and a set of public baths. These include Turkish and a specially large Russian bath. A complete new scheme of water supply has been furnished to the establishment. The building has been designed by, and carried out under the superintendence of, Mr. James M. Monro, architect, Glasgow, the contractors being Glasgow tradesmen.

SANITARY AND ENGINEERING NEWS.

WATERWORKS, PORTRANE ASYLUM.—An important adjunct of the Portrane Asylum (now in course of construction) are the waterworks near Swords. The reservoirs are situated five miles from the Asylum, and the water is conveyed in pipes of 5-inch bore, laid partly on the road and partly through fields *en route*. The works were designed by Mr. J. H. Swiney, C.E., and carried out to the order of the Board of Control by Mr. W. Baird. The cost of the works was between 8,000*l.* and 9,000*l.*

CARRIAGE BRIDGE, SHEFFIELD.—Mr. W. Willcocks, M.Inst.C.E., one of the Inspectors of the Local Government Board, sat at the Sheffield Town Hall on the 4th inst. for the purpose of inquiring into an application by the Corporation for sanction to borrow 9,088*l.* for the construction of a bridge over the river Don at Ball-street, and 1,500*l.* for the purchase of land for the widening of that street. The Town Clerk, in explaining the need for the new bridge, said for a long time past people had moved for the erection of a carriage bridge in place of the foot bridge. On each side of the river at that point there were extensive manufactories and a large population. The foot bridge had fallen into a dangerous condition, and the Council decided to construct a carriage bridge 30 ft. wide. A contract had been entered into with Messrs. Braithwaite & Co., of Leeds, for the erection of the bridge at a cost of 9,087*l.*, and the work was now in progress. The City Surveyor, Mr. C. F. Wike, having given evidence, the inquiry terminated.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOW, SPETCHLEY, WORCESTER.—The tenants, past and present, of the Spetchley Park Estate have erected a stained glass window in the Berkeley Chapel attached to the church to the memory of Mr. R. Berkeley, the late landlord. The window contains figures of St. Robert and St. Catherine, and also of the deceased gentleman and Lady Catherine Berkeley. The design was carried out by Messrs. Hardman & Co.

MEMORIAL WINDOW, BROADWAS, WORCESTER.—A window has just been placed in Broadwas Church as a memorial of the late Mrs. E. H. Hill. The work has been done by Messrs. Burlison & Grylls, under the superintendence of Mr. C. Hodgson Fowler, F.S.A., who undertook the restoration.

MEMORIAL WINDOW IN ABERFOYLE CHURCH.—A stained-glass window to the memory of the late Mrs. Dalziel, of Tigh-na-Traigh has been placed in Aberfoyle Parish Church. It consists of three compartments, which are filled with figures illustrating the Nativity. Messrs. A. Ballantine & Gardiner, of Edinburgh, carried out the work.

MEMORIAL WINDOW, HASLEMERE. — The memorial to Lord Tennyson in Haslemere Church is to take the form of a window, after a design by the late Sir Edward Burne-Jones, one of the last of a series illustrating the story of the Holy Grail, representing the vision which came to Sir Galahad in the little chapel.

MEMORIAL WINDOW, UPPERTHORPE CHAPEL, SHEFFIELD.—At the Unitarian Chapel, Upperthorpe, on the 8th inst., the window placed in the chapel to the memory of the late Mr. Charles Woollen was formally dedicated. The window is by Mr. Henry Holliday, of London.

NEW REREDOS, CODDENHAM CHURCH, SUFFOLK.—A new reredos has been erected in this church, the gift of the Vicar and friends. The panels are carvings in high relief, decorated with gold and colour, and represent, on the left, the three Marys at the Tomb, and, on the right, the descent of our Lord from the Cross. Iron cranes of elaborate design, with curtains hanging therefrom, are fixed on either side of the reredos. The whole work was carried out by Messrs. Percy Bacon & Bros., of London.

NEW WINDOW, WEMBLEY PARISH CHURCH.—On Sunday last a new memorial window was unveiled in this church. It was designed and executed by Mr. C. Langford, of London and Wembley. The subject is Simeon with the Child Jesus and Anna, the Prophetess. Anna is in rich blue over-dress on white under-dress. Simeon is in diapered green over-dress on white under-dress, with sandals on feet, holding the Child Jesus. Behind each figure is a ruby curtain with cord and fringe.

WINDOW, ST. GEORGE'S, KIDDERMINSTER.—A memorial window to the late Mr. J. T. Meredith, architect, was dedicated at St. George's, Kidderminster, on Sunday evening. The window, which is in the west end of the church, has been given by Mr. J. Pritchard, who was for many years with Mr. Meredith.

THE ELECTRIC LIGHT AT THE QUEEN'S HOSPITAL, BIRMINGHAM.—An electric light installation has been provided at this hospital. The scheme has been carried out in accord with the specifications of Messrs. Henry Lea & Son, of Bennett's-hill, and Messrs. Verity, Limited, have been the contractors. Mr. Thomas Ions, Messrs. Verity's manager, has been personally supervising the work.

MISCELLANEOUS.

THE WIDENING OF PARLIAMENT-STREET. — In our report on December 17 last of the London County Council's meeting held on the previous Tuesday, we stated that it was agreed to contribute, on the usual conditions, a sum of 12,000*l.* in respect of the making up of Parliament and Charles-streets by H.M. Office of Works. We may here mention some of the antecedent circumstances considered by the Council's Improvements Committee. To clear the area bounded by Parliament, Charles, King, and Great George-streets costs the Office of Works 405,000*l.*, a sum that includes 100,000*l.*, the value of land forming part of the Westminster Bridge Estate owned by them. The Office of Works invited the Council to attend a conference to determine what contributions should be made by the Council and the Westminster Vestry. It was stated at the conference* that Parliament-street is to be widened from about 60 ft. to at least 125 ft., and that the site of King-street will be taken for the new public offices, and suggested that the Council might properly contribute out of the county fund to the improvement, according to the value of the land, 17,858 square feet, being the difference between the area added to Parliament-street and that to be appropriated for buildings in King-street. Having regard to the fact that they would not lose the frontage value of the lands the Office of Works estimated at 6*l.* per square foot (or 107,000*l.*) the value of the land given up to the public way, besides the cost of paving the widened thoroughfare. But Mr. Shaw Lefevre, on behalf of the Council, pointed out that the clause authorising them and the vestry to contribute was not originally in the Public Offices (Westminster) Site Act, 1896, but was inserted during the progress of the Bil through Parliament without the Council or the Vestry being consulted in the matter, and that the Council was not asked to contribute until the land had been acquired. On these and other grounds it seemed to the Council they might rightly infer that the improvement would not entail any cost when the commercial value of the land was accounted for. The Improvements Committee say in their report—"It appears to us that the Council would not be justified in making a contribution to a public improvement, unless it were clearly shown that it was being carried out at a loss. As the Office of Works in 1882 so strongly represented to the Metropolitan Board of Works that in their opinion a scheme exactly similar . . . . could be carried out without loss, and as a body of private promoters were in 1896 also prepared to carry out this same scheme at their own cost, and under the belief that they would make a profit thereby, it cannot be shown that the Government is incurring a loss by the transaction. Moreover, it must not be forgotten that the Office of Works are retaining for the purpose of the public offices the very valuable frontages to the widened thoroughfare of Parliament-street. . . . We think that the Council . . . . may well desire to show its appreciation of the value of this work to the extent of taking upon itself the cost of making the widened roads in Parliament-street and Charles-street" [estimated by them at 12,000*l.*].

PRESENTATION TO A BOROUGH SURVEYOR.—A dinner was provided at the Lynn Town Hall a few days ago in connexion with the presentation of a testimonial to Mr. E. J. Silcock, now of Leeds and formerly for eleven years Borough Engineer at King's Lynn. Mr. Jermyn, who acted as Chairman, said that during the past year, on the retirement of their late Engineer, there was a very strong desire expressed by several members of the Council, and others who had been members, that some little recognition of the great public service Mr. Silcock had rendered to the borough should be made, in order to show a tangible expression of the high esteem in which he had been held during his eleven years' residence in Lynn. Of the many measures which had been adopted, some had met with the approval of the ratepayers generally, and some had not, but they could not help looking back on the eleven years and noticing that the town offered a much better reception to any one who visited it or came to reside in it than it did eleven years ago. There were great difficulties to contend with when Mr. Silcock came to the town eleven years ago, but his ability enabled him to cope with them, and to surmount them. Mr. Jermyn then handed to Mr. Silcock a silver salver, on which was engraved:—"Presented to Edward J. Silcock, A.M.I.C.E., F.G.S., by past and present members of the Corporation of King's Lynn, in recognition of his services as Borough Engineer, August, 1898." Together with this there was tendered to Mr. Silcock an illuminated testimonial.—Mr. Silcock said the presentation had come upon him by surprise; the secret had certainly been well kept. As had been said, a man holding the position of Borough Engineer—and more especially if the appointment of inspector of nuisances was coupled with it—had very great difficulty in carrying out his duties without hurting the feelings of somebody. He was bound, in the execution of his duties, to make many enemies. Therefore it was the more pleasing to find members of the Council appreciating his services, especially as they had a more

* The Westminster Vestry did not attend, having resolved not to contribute to the improvement.

intimate knowledge of his duties than anybody else, and the difficulties he had to contend with.

LABOUR CLASS DWELLINGS, LIVERPOOL.—Mr. F. T. Turton, Deputy City Surveyor of Liverpool, has just presented to the Insanitary Property and Artisans' Dwellings' Committee of the City Council a report on the subject of dwellings for the labouring classes. With the report there was submitted plans showing the suggested labourers' dwellings proposed to be erected on land acquired in Dryden-street and Rachel-street. The boundaries of the land are somewhat irregular the total area of the site being 4,788 square yards. The houses proposed are of two types, designated "A" and "B" respectively, each type comprising three blocks of houses three stories in height, the inside dimensions of the rooms being as under, viz:—Type "A"—ground floor: living-room, 15 ft. by 10 ft. 6 in.; bedroom, 12 ft. by 10 ft. 9 in.; ditto, 12 ft. by 9 ft. 6 in.; ditto, 9 ft. 3 in. by 9 ft.; type "A"—first and second floors: living-room, 13 ft. by 9 ft. 3 in.; bedroom, 11 ft. by 11 ft. Type "B"—ground floor: living-room, 15 ft. by 10 ft. 9 in.; bedroom, 11 ft. 6 in. by 10 ft.; type "B"—first and second floors: living-room, 11 ft. by 11 ft.; bedroom, 10 ft. by 8 ft. 6 in. All the houses are provided with separate water closets, and, with a few exceptions, separate sculleries. Provision has been made in every case for the storage of fuel, each house has also a food locker, ventilated from the outer air, in addition to which the houses on the ground floor have yards for the exclusive use of their tenants. The entrances to the houses on the first floor will be from a balcony, the stairs to which are at the end of each block, while the houses on the second floor will be approached by stairs from the same balcony. In two of the blocks of type "A" the houses on the ground floor are interlocked so as to provide three-roomed houses instead of four-roomed houses. The total accommodation proposed to be provided is:—five four-roomed houses, eight three-roomed houses, and 119 two-roomed houses; total 132. It is proposed to let the houses, approximately, on the following basis per week:—Living-room, 1s. 6d.; each bedroom, 1s.; scullery and water-closet, 6d.; yard, 6d. The calculations as to cost are: 4,788 square yards of land at 12s., 2,873*l.*; estimated cost of buildings, 12,227*l.*; total estimate of land and buildings, 15,100*l.* The total estimated rental is: 1,108*l.* 18s. per annum; less 40 per cent. leakages, 443*l.* 11s.; net estimated rental, 665*l.* 7s. The Deputy Surveyor proposes that these houses should be erected by contractors, and not by men employed by the Corporation.

LEGAL.

THE STATUTE OF LIMITATIONS.

IN the case Bolding *v.* Henderson, heard at Marylebone County Court on Monday, before his Honour Judge Stonor and a jury, a somewhat novel defence was set up. The action was brought by Messrs. Bolding & Sons, sanitary engineers, of Grosvenor Works, Oxford-street, London, W., to recover from Mr. Thomas Henderson, builder and contractor, of 18 and 20, Market-street, Mayfair, London, W., 28*l.* 8s. 1d., for goods sold and delivered. Mr. H. Crispe was counsel for the plaintiff, and Mr. J. Wilson defended.

Mr. Crispe explained that the goods in question were supplied in October, 1891, and the defendant, who did not dispute receiving them, pleaded non-liability under the Statute of Limitations, on account of six years elapsing without claim or acknowledgment of the debt. The learned counsel, however, maintained that the debt had been revived by letters passing between the parties. In a letter dated January 26, 1893, the plaintiff wrote to the defendant as follows:—"In answer to your letter of 25th inst., I am sorry to say that through unforeseen circumstances in connection with the land at Herne Bay, my affairs are about to be wound up, and my credit at the bank is stopped, so, if I give you a bill it will be on my own account, and not through the bank. Therefore, for the present matters must stand as they have been; but I must thank you for the leniency you have given me hitherto."

Counsel for the defendant submitted that the Statute of Limitations required, before a debt could pass from under its provisions, that there should be an acknowledgment of the debt, which implied a promise to pay, and that these conditions were not found in the letters of the defendant.

His Honour: But he admits his indebtedness in his letters, and says, "matters must stand as they have been." That seems quite sufficient. I do not think there can be any doubt about it. I find for the plaintiff.

EMPLOYERS' LIABILITY ACT.

ON the 9th inst., at the Wandsworth County Court, his Honour, Judge Lushington, Q.C., and a jury tried an action under the Employers' Liability Act, in which a painter, named Charles Edwards, of 61, Beachcroft-road, Tooting, sued George Godfrey, a builder, of Balham and Tooting, to recover 150*l.* for personal injuries sustained.

The plaintiff's case was that he was engaged at the "Towers," at Balham, on September 12 last, in glazing the roof of a studio that had been erected on the top of the house. The defendant's brother, from whom plaintiff received his instructions, was placing the last sheet of glass in the roof, when he told plaintiff to go and pack up the tools. The plaintiff stepped on a flat roof adjoining, which was covered with three or four loose sheets of zinc. He was near the edge, when, without warning, the zinc gave way, and plaintiff fell from the roof of the house to the ground, a distance of 35 ft. He sustained severe injuries to his spine. The plaintiff was twenty-two years of age, and earned from 30s. to 2*l.* a week. The defence set up was that the plaintiff fell from the roof owing to his jumping down on a narrow parapet, instead of getting down a ladder—the safe way. The jury found the plaintiff guilty of contributory negligence, and returned a verdict for the defendant.

DANGEROUS DISCHARGES INTO SEWERS

AT West Ham Police-court on the 9th inst., Mr. R. A. Gillespie gave his decision on two summonses, the hearing of which had occupied three special sittings of the court. The defendants were Messrs. Burt, Boulton, & Haywood, chemical manufacturers, of 64, Cannon-street, E.C., and West Silvertown; and the allegation made against them by Mr. Lewis Angell, the Borough Engineer of West Ham, was that on July 19 they had thrown, or suffered to be thrown, or to pass into a sewer belonging to the West Ham Corporation and into a drain communicating therewith a matter or substance by which such sewer or drain might be injured, contrary to section 16 of the Public Health Acts Amendment Act, 1890. The second information alleged that defendants turned into, or permitted to enter, the sewer chemical refuse which was dangerous, contrary to section 17 of the same statute. The case for the West Ham Corporation was that for a considerable time past complaints had been made that offensive matters were passing through the West Ham sewer. In March, 1891, and again in December, 1895, the manufacturers in the district were written to, having their attention called to the various provisions of the Public Health Acts dealing with the subject, but there was no apparent improvement. On July 17 last a serious explosion occurred in the North Woolwich-road sewer, the effects of which could be seen for nearly half a mile along the line of the sewer, six or seven manholes being blown off, and the sewer caught fire. The matter was at once investigated by the drainage inspectors; and after it was deemed safe to enter the sewer it was on July 19 examined from the end of the North Woolwich-road to a point some forty yards or so beyond the defendant company's creosoting works. Here a sample of the sewage was taken, and a light was applied to the contents of the bucket, with the result that the stuff burned for nearly three minutes, throwing up a flame some 18 in. high. Further investigations showed that similar stuff was in the sewer right along as far as a manhole just beyond defendants' works; there it ceased. From another manhole tarry matter was seen coming from a drain connected with Burt, Boulton, & Haywood's, and the corporation officials entering defendants' premises proceeded to an inspection chamber, where a sample of liquid running to the drain was taken. The liquid, which was of a tarry nature, had a temperature of 118 deg. Fahr., and when a light was applied to it it burned. Mr. Gabbetts, the manager, was sent for, and after an altercation as to the manner of the officials' entry and a dispute as to the fairness of the sample another sample was taken. Some of the tarry matter ran into the pail with the sewage; but when a light was applied to this bucket there was no burning. One-third of the first sample taken was left with Mr. Gabbetts and one-third was submitted for analysis by experts. It was described as a brown liquid with a strong odour of coal-tar naphtha, the surface being a dark-coloured, oily liquid, which flashed at the ordinary temperature of the room and distilled a small quantity of benzine. The sample also emitted an appreciable quantity of inflammable vapour, which, if mixed with warm water, became extremely inflammable. The case for the defendants was a denial that they were the persons who had put dangerous matter into the sewer. The substance that had been found in the sumphole on the occasion in question consisted of valuable products, which it was to the defendants' interest to retain, and which, as marketable commodities, the defendants used every known means to retain. There were other factories in the neighbourhood where such stuff as that found in the sewer was used in large quantities, and being waste it had to be disposed of. This was not so with the defendants, who had laid down a long series of sumpholes, or precipitators, for the express purpose of retaining every oily substance. The sample taken was alleged to be unfair, and, in support of this contention, it was stated that since the date of the alleged offence 300 bottles of samples had been taken, the worst samples having been analysed. Mr. Gillespie, in giving his decision, said he had gone carefully through all the evidence, and he was satisfied that the West Ham Corporation had made out their case under both summonses. On the first summons he inflicted a fine of 5*l.* and costs, and on the second summons 1*l.* and costs. On the question of costs, Mr. G. E. Hilleary, for the Corporation, said that, apart from the professional charges, the expenses of the Town Council would reach almost 100*l.*; and, eventually, Mr. Gillespie said he would allow eighty guineas costs in the first case, and 7s. costs in the second, the eighty guineas to include court costs.—*Times.*

THE WORKMEN'S COMPENSATION ACT.

HIS HONOUR JUDGE COLLIER gave his decision in the Liverpool County Court on the 4th inst. in the claim under the Workmen's Compensation Act heard before him recently. The claimant was a labourer named Richard Rogers, and he sought compensation from Mr. P. Tyson, builder and contractor, Soho-street, Liverpool, for the death of his son, John Rogers, a bricklayer's labourer, who was killed by falling from a scaffold six stories high. The deceased was a single man, living in lodgings apart from his father, who is a widower, and it was urged on behalf of the respondent that the father was not entitled to recover under the Act, as he was not dependent upon his son at the time of the latter's death. His Honour held that there were no dependents in this case, and that, therefore, the claimant was not entitled to compensation. The respondent had paid 10*l.* into court to cover funeral expenses, and, by consent, his Honour directed that this sum be paid out to the claimant.

MEETINGS.

FRIDAY, JANUARY 13.

Architectural Association (Discussion Section).—Discussion on "Recent Works on Specifications." 7 p.m.

Institution of Civil Engineers (Students' Meeting).—Dr. Archibald Barr, Professor of Civil Engineering and Mechanics in the University of Glasgow, will deliver an address on "The Application of the Science of Mechanics to Engineering Practice." 8 p.m.

SATURDAY, JANUARY 14.

Perth Architectural Association.—Visit to Southern District School, South William-street.

MONDAY, JANUARY 16.

Royal Institute of British Architects.—The Fifth General Meeting (Business and Ordinary).—(1) To elect candidates for membership; and (2) To read the Deed of Award of Prizes and Studentships for 1898-99. Mr. Lacy W. Ridge has given notice that he will move the following resolutions:—(1) That the administration of Local Building By-laws in rural districts is a matter calling for the action of the Royal Institute; (2) That the Council be requested to communicate with the Local Government Board on the subject, and to appoint a Special Committee to consider and take action thereon; (3) That matters of sanitation, including the preparation of the site for building, should in all cases be carried out under the supervision of the Local Authorities. That where separate tenements adjoin they should be divided by party-walls of incombustible material. That the interests of the public in buildings in rural districts are not such as to justify any further interference on the part of the public authorities with the construction of buildings. 8 p.m.

Society of Arts (Cantor Lectures).—Dr. Samuel Rideal on "Bacterial Purification of Sewage." I. 8 p.m.

Victoria Institute.—"A Demonstration of the Crookes and Röntgen Phenomena," by Mr. Gerard Smith. 4.30 p.m.

TUESDAY, JANUARY 17.

Northampton Institute, Clerkenwell.—Lectures on Mediæval Architecture, by Mr. Francis Bond. II.—"Architecture in the Dark Ages." 7.45 p.m.

Institution of Civil Engineers.—Papers to be read with a view to discussion: 1. "The Effects of Wear upon Steel Rails," by Mr. William G. Kirkaldy. 2. "On the Microphotography of Steel Rails," by Sir William C. Roberts-Austen. 8 p.m.

WEDNESDAY, JANUARY 18.

Society of Arts.—Mr. L. F. Vernon-Harcourt, M.A., on "Canals and Inland Navigation in the United Kingdom." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Annual meeting of the members. 8 p.m.

THURSDAY, JANUARY 19.

London Institution.—Mr. A. F. Sieveking, F.S.A., on "Gardens: Their History and Literature." Illustrated. 6 p.m.

Society of Antiquaries.—8.30 p.m.

Society of Arts (Indian Section).—Mr. J. Nisbet on "Railways in Burma and their Proposed Extension Across Yunnan." (Meeting to be held at the Imperial Institute.) 4.30 p.m.

British Archæological Association.—Dr. W. de Gray Birch, F.S.A., on "The MSS. of Romsey Abbey." 8 p.m.

Civil and Mechanical Engineers' Society (Hotel Victoria, S.W.).—Mr. E. H. G. Brewster on "The Inadvisability of the Water Supplies being in the Hands of the Local Authorities." 7.30 p.m.

Institution of Civil Engineers (Students' Visit).—To the Testing and Experimenting Works of Messrs. David Kirkaldy & Son, 99, Southwark-street, S.E. 2.30 p.m.

FRIDAY, JANUARY 20.

Architectural Association.—Illustrated lantern lecture by Mr. Beresford Pite, "Ancient and Modern Buildings in Palestine." 7.30 p.m.

Royal Institution. — Professor Dewar on "Liquid Hydrogen." 9 p.m.

Glasgow and West of Scotland Technical College (Architectural Craftsman's Society).—Mr. Peter Fyfe on "The Housing of the Labouring Classes." 8 p.m.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Fire Brigade Station	Bradford Corp.	100*l.*; 50*l.*; 30*l.*	Feb. 1
*Refuse Destructor	Tottenham U.D.C.	25*l.*; 15*l.*; 10*l.*	Feb. 7
*Dwelling House on Land Liable to Subsidence	Northwich Salt Compensation Board	20*l.*; 10*l.* and 5*l.*	Mar. 1
Isolation Hospital, Forfar, N.B.	Forfar and Dundee District Com.	31*l.* 10*s.*; 21*l.*; 15*l.* 15*s.*	Mar. 31
*Memorial Hall and Art Gallery	Bradford Corp	150*l.*: 100*l.*; 50*l.*	April 14
Technical Institute and Library	Gosport and Alverstoke U.D.C.	100*l.*; 25*l.*; 10*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Earthenware Pipes	Belfast Corp.	J. C. Bretland, Town Hall	Jan. 17
Additions to Poor Law Offices, East Parade	Leeds Union	T. B. Wilson, Archt. 12 East Parade, Leeds	do
Electricity Works	Rochdale Corp.	J. Leach, Town Hall	do.
Hotel, Southminster, Essex	Gray & Son	P. M. Beaumont, C.E. Maldon	do.
House, Bratch Waterworks, Wombourn	Bilston U.D.C.	—Wilson, Archt. Town Hall, Bilston	do.
Paving, &c. Works	Bedford U.S.A.	Borough Surv. Town Hall	do.
Chapel, Walls, &c. near Sheffield	Handsworth Burial Bd.	E. Winder, Junr. Surv. Corn Exchange-chambers, Sheffield	do.
Police Station, Houses, &c. Huyton	Lancs. Standing Joint Committee	H. Littler, Archt. County Offices, Preston	do.
Road Metal	Rugby U.D.C.	D.G. Macdonald, C.E. Rugby	do.
Six Cottages, Carrigan-lane, Londonderry	Trustees	R. E. Buchanan, Archt. 33, Shipquay-st. Londonderry	do.
*Steam Roller	Thedwastre R.D.C.	R. E. Wilkes, Stowmarket, Suffolk	Jan. 18
*Renewing and Repairing Asphalting	Sheffield Town Trust	Flockton, Gibbs, & Flockton, 15 St. James-row, Sheffield	do.
Fire Station, Strood	Rochester Corp.	W. Banks, C.E. Guildhall, Rochester	do.
*House, Shillingford, Berks	.....	S. Johns, Archt. Wallingford	do.
Additions to School Buildings	Eastdown (Devon) Sch. Bd.	J. Mayne, Eastdown, Barnstaple	do.
Business Premises, High-st. Enniskillen	.....	T. Elliott, Archt. 37, Darling st. Enniskillen	do.
Twelve Houses, Meltham, near Huddersfield	.....	J. Berry, Archt. 9, Queen-st. Huddersfield	do.
Cottage, Creyke's Siding, Goole	W. Smith & Co.	H. B Thorp, Archt. Goole	do.
House, Church Field-lane, Glass Houghton, Yorks	.....	A. Hartley, Archt. Carlton-chambrs. Castleford	do.
*Carts, Vans, and Horse Brooms	Chiswick U.D.C.	A. Ramsden, Vestry Hall, Chiswick	do.
*Pipe Sewers	Ealing U.D.C.	C. Jones, Public Buildings, Ealing, W.	Jan. 19
Workhouse Additions	Warwick Union	F. P. Treneas, Archt. 8, Jury-st. Warwick	do.
Additions to Schools, Churchtown	Paul (Cornwall) Sch. Bd.	W. Curnow, U.D.C. Offices, Paul	do.
Two Houses and Shops, Cavendish-street, Keighley	.....	G. H. Knowles, Archt. Burlington-chmbrs. Keighley	do.
Sewerage Works, Back Streets	Eccles (Lancs.) Corp.	Borough Surv. Town Hall	do.
Thirty-five Cottages, Aberdare	Cwmneol Building Club	T. Roderick Archt. Clifton-street, Aberdare	Jan. 20
*Road Making and Drainage	Sutton Coldfield Corp	W. A. H. Clarry, Town Hall, Sutton Coldfield	do.
Business Premises, near Oldham	Delph Indus. Co-op. Soc. Ltd.	Secretary, Co-op. Soc.'s Offices, Delph	Jan. 21
Hartshill Stone	Banbury T.C.	N. H. Dawson, C.E. Town Hall	do.
Kerbing and Channelling, Ford Cross	Dartmouth U.D.C.	T. O. Veale. Surv. Council Offices	do.
Alterations to Talbot Hotel, Whitby	Russell & Wrangham Ltd.	J. J. Milligan, Archt. 77, Baxtergate, Whitby	do.
Shoe Factory, Hudson-rd. Burmantofts, Leeds	.....	Smith & Tweedale, Archt. 12, South-parade, Leeds	do.
Villa, Greasborough, nr. Rotherham	J. Rawlin	J. Platts, Archt. Old Bank-bldgs. Rotherham	do.
Filter Beds, Gnoll	Neath Corp.	D. M. Jenkins, Engr. Gwyn Hall, Neath	Jan. 23
Five Cottages, Rawtenstall	R. Parker	F. J. Hobson, Archt. King-st. Rawtenstall	do.
House, Newtownmanningham, co. Donegal	Committee	M. A. Robinson, Archt. Richmond-st. Londonderry	do
Additions to Imperial Hotel, Perth	T. Davies	A. O. Evans Archt. Pontypridd	do.
Levelling, Metalling, &c. Stoke Prior	Bromsgrove R.D.C.	H. W. Smith, Surv. 4, Foregate-st. Worcester	do.
Refreshment Rooms, Guide Bridge Station, Lancs.	G. C. R. Co.	Engineer, London-road Station, Manchester	do
Schools, Hengoed, Wales	Gelligaer County School Governors	James & Morgan. Archts. Charles-st-chmbrs. Cardiff	do
Drainage Works	Birmingham Corp.	J. Price, City Engr. Council House	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Road Making, and Supply of Granite Kerb and Asphalte Paving	Woodford U.D.C.	Surveyor's Offices, Woodford Green	Jan. 2
*Widening Road, &c.	Beckenham U.D.C.	J. A. Angell, Council Offices, Beckenham	do.
*Articles and Works (various)	Chelsea Vestry	T. W. E. Higgens, Town Hall, Chelsea, S.W.	Jan 24
*Additions, &c. to Laundry, Fitting and Alterations to Stores	Croydon Union	F. West, 23, Coombe-road, Croydon	do
Roads, Bargoed, Aberdare	.....	G. Kenshole, Archt. Ystrad Mynach, Aberdare	do.
*Oak Fencing	L.C.C.	Parks Dept. 9, Spring-gardens, S.W.	do.
*Post Office, Stalybridge	Commrs. H.M. Works	Offices. Storey's Gate, Westminster	Jan. 25
*Thames Ballast and Sand	Hackney Vestry	J. Lovegrove, Town Hall, Hackney, N.E.	do.
*Boiler House, Boilers, Cooking Apparatus, &c.	Cranbrook Union	The Master, Workhouse, Cranbrook, Kent	do.
Cottage Houses, Manstone	Isle of Thanet Union	L. Grant, Archt. High-st. Sittingbourne	do.
Ornamental Railings, Buckley Wells	Bury (Lancs.) Corp.	Boro. Engr. Bank-street, Bury	do.
Street Works, &c.	do.	do.	do.
Additions to Central Station, Blackpool	L. & Y. and L. & N. W. Ry. Co.'s	C. W. Bayley, Hunt's Bank, Manchester	do.
*Alterations at Workhouse, Ratcliff, E.	Stepney Union	E. Banks Martin, 103, Plashet-grove, East Ham	Jan. 26
Sewerage Works, Egerton-rd. &c.	Withington (Lancs.) U.D.C.	A. H. Mountain, C.E. Town Hall	do.
Chimney Shaft at Workhouse, Penbury	Tonbridge Union	F. W. Stone, 23, Church-rd. Tunbridge Wells	do.
Water Supply Works, Cropton	Pickering R.D.C.	R. Kitching, Eastgate, Pickering	Jan. 28
Service Reservoir, C.I. Mains &c.	Midhurst (Sussex) R.D.C.	Taylor, Sons & Co. Engr 27, Great George-street, S.W.	Jan. 30
Sewers (5 miles)	Ampthill (Beds.) U.D.C.	T. Hennell, Engr 6, Delahay-st. S.W.	do.
*Government Offices, Manchester	Commrs. H.M. Works	Offices, Storey's Gate, Westminster	do
*Works and Materials	Wandsworth B. of W.	Offices, East Hill, Wandsworth, S.W.	Jan. 31
Police Station, Church-st.	Berwick-on-Tweed T.C.	E.B. Dick, Archt. 55, Northumberland-st. Newcastle-on-Tyne	do.
Bathrooms at Workhouse	Northallerton Union	Fairbank & Son, C.E. 13, Lendal, York	do.
Main Drainage	Chipping Norton T.C.	N. Lailey, C.E. 16, Great George-st. S.W	do.
*Underground Convenience	Camberwell Vestry	Surv. Vestry Hall, Peckham-rd. S.E.	do.
*Brickmaking	East Sussex C.C.	F. J. Wood, County Hall, Lewes	do.
Road Materials, nr. Exeter	St. Thomas R.D.C.	A. E. Ward, 9, Beaford-circus, Exerer	Feb. 1
Bridge Work, Horninglow-st.	Burton-on-Trent Corp.	G. T. Lynam, Borough Engr. Town Hall	do.
*Technical School	Bootle Corp.	J. H. Farmer, Town Clerk, Bootle	do.
*5½ miles of Aqueduct	Birmingham Corp.	J. Mansergh, 5, Victoria-st. S.W.	Feb. 10
*Isolation Hospital	Wimbledon U.D.C.	C. H. Cooper, Council Offices, Broadway, Wimbledon	Feb. 13
*Public Baths	Poplar Vestry	Clarkson, 136, High-street, Poplar, E.	No date
Alterations to Business Premises, Queenstown, Ireland	T. Murray	A. Hill, Archt. 22, George's-st. Cork	do.
Four Houses, North Grange-road, Headingley	.....	Kendal & Sakes, Archt. Victoria-square, Leeds	do.
Alterations to Holland House, Bantry, Yorks.	.....	J. F. Walsh, Archt. L. & Y. Bank-chambers, Halifax	do.
*Villa, Felixstowe	.....	G. W. Thompson, Archt. Granville House, Arundel-st. London, W.C.	do.
Two Houses, Brampton, nr. Carlisle	.....	J. S. Thompson, Bank-st. Carlisle	do.
Four Houses, Bridlington Quay	Whitaker Bros.	Chorley, Connon & Chorley, Archt. 15, Park-row, Leeds	do.
Two Pair Villas, Headingley	.....	Kendall & Bakes, Archt. Victoria-sq. Leeds	do.
Four Houses and Shops, Strand, Exmouth	W. J. Sellers	P. Kerley, Archt. Exmouth	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in.
*Quantity Surveyor (Temporarily)	Reigate Corp.	3*l.* 3*s.* per week	Jan. 16
*Inspector of Works	Deal Corp.	2*l.* 10*s.* per week	Jan. 18
*Clerk of Works	Aylesbury U.D.C.		Jan 19
*Engineer and Surveyor	Sunderland Corp.	700*l.* increasing to 800*l.* per an.	Jan. 21
*Main Road Inspectors (Three)	Essex C.C.	156*l.* per ann each	Jan. 25
*Inspector of Street Cleansing	S. of Holborn District	2*l.* 10*s.* per week	Jan. 31

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv. vi. & viii. *Public Appointments, pp.* xvii xix. & xxi.

RECENT PATENTS:

ABSTRACTS OF ACCEPTED SPECIFICATIONS.

Open to Opposition until February 14.

[1898] 23,939.—SLIDE BEVELS FOR MARKING THE BEVELS OF ROOF TIMBERS, &C.: *C. D. Bevan.*—The contrivance combines an L-shaped blade moving freely in a stock. The stock, representing the rafter, can be fixed at any angle desired, and is made of two metal halves (each half being channel or U-shaped) rivetted together at the ends, and kept apart sufficiently to allow the blade to slide between them. Each half of the stock has a long slot to allow the clip-screws to slide along it. The blade is graduated on one face with inches and parts, on the other with feet and parts, according to a scale of 1 in. to a foot; and the two face edges of the stock are respectively graduated to correspond. The two clips hold the blade in the stock; in operation, suppose a roof-truss with a rise of 4 ft. and a span of 12 ft., to obtain the angles made by the rafter with the tie-beam, and with the perpendicular from the tie-beam (at the apex of the roof), the stock's face-edge is fixed in a line coinciding with a line drawn from a point distant 4 ft. (by the scale on the blade) in a vertical direction from the outer angle-point of the blade to a point distant 6 ft. (by the same scale) in a horizontal direction from the blade's outer angle-point. When the bevel is set to the required angle, if the face-edge of the stock is held against the back of the rafter the two edges of the blade are respectively parallel to the top and bottom bevelled ends of the rafter and may be used for marking either or both of the angles—thus the slide bevel can be set to mark the two angles with one setting, and two separate bevels need not be used to mark the two angles when the angles are not equal to one another.

Open to Opposition until February 20.

[1897] 29,067.—DOOR FASTENINGS: *A. Laisis.*—The invention consists of a series of bolts arranged along the rabbet and operated by means of rods and bell-cranks connected with the bolts in such a manner that the latches of all the locks are moved by operating the key and bolt of the main lock; the lock admits of several modifications and may be used for fastening French windows and for other purposes.

30,065.—KEY SWITCH HOLDERS FOR INCANDESCENT ELECTRICAL LAMPS: *J. M. Huisman & H. C. Gover.*—The claim is for the combination of two spring pistons or pins, a circuit-closing device, and contact screws embedded in an insulating block, which is divided in such a manner as to completely enclose the contact-breaker and all working parts—the spring pistons excepted.

30,507.—BORING ARTESIAN WELLS: *M. J. Badon.*—The principle of the invention is the electrical transmission of power for boring purposes; an electrical motor is placed at the bottom of the well in a hermetically closed box which slides in a tubing and imparts a rotatory or percussive motion to the boring tool, the current being supplied from any desired source of electricity situated at the ground's surface; to counterbalance the external pressure of the water upon the box, and to prevent water from entering into it, there is introduced into the box, through a tubular union, air or another gas compressed, which presses upon a bath of oil which covers cupped leathers in the joint of the box; a float on the oil will rise to operate a bell in case any water should enter the box.

[1898] 664.—WATERPROOF COATING FOR WALLS, &C.: *E. Toussaint.*—For a hydro-carbon coating that shall have penetrative and hardening qualities, is made a mixture of benzine (35 parts), beeswax or cerasin (1 part), and Judæan bitumen or dammar gum or colophany (10 parts): it is claimed that the coating may be used upon all materials—including cements, plasters, stones, wood, and leather; and when mixed with white lead or zinc white and pigment will form an excellent paint.

2,299.—JOINTS BETWEEN THE GLASS GLOBES OF ELECTRICAL ARC LAMPS AND THEIR SUPPORTS: *P. H. Guerin.*—In order to diminish the consumption of the carbons the joint between the globe and its support is

made air-tight, or as air-tight as is possible, by means of a hydraulic joint, or a sand joint, so that the carbons are burned in a vacuum (more or less so) or in the gases produced by the combustion of the carbon; the body of the arc lamp has a cylinder enclosing the apparatus for regulating the carbons, and the cylinder's lower end is extended downwards to dip into a channel or recess around the glass globe's neck, and is filled with water, sand, or other suitable material to form the joint. The channel's diameter and width may be varied, and it may be made separately of metal or other material set in cement.

2,822.—FIREPROOF CEILINGS AND PLATES OR TILES THEREFOR: *H. H Leigh.*—The plates or tiles of fireproof materials are joined to one another by groove and tongue, are stepped at their ends, and are designed to be supported between the beams or girders of a building which are provided with lateral projections to engage with the steps in the tiles; the plates or tiles are so arranged between the beams or girders that their under-face projects beneath the under-faces of the beams, so as to leave a free space to be closed by network or gratings and filled with mortar; the moulding-box for making the tiles has, between its two sides, a sliding transverse wall, moved to and fro by a rack-and-pinion gearing, and the box's interior is shaped to correspond with the shape of the edges of the plates or tiles.

3,622.—MULTIPLE WATER-SUPPLY TAPS AND ACCESSORY FITTINGS FOR BATHS, LAVATORIES, &C.: *J. Shanks.*—The contrivances comprise various modifications to meet different requirements. In one form a tap for delivering hot or cold water, or both, from one nozzle, consists of a cylindrical box, having around it inlets for hot and cold water, and an outlet delivery, with external screw caps giving access to inlet spaces, in which are arranged disc valves that close under the pressure, springs being added to prevent displacement and to ensure the closing. Each valve has a spindle projecting into the box; an eccentric upon the spindles opens the valves; if it is required to direct the water to one or other of two or more delivery nozzles the outlets are provided with valves actuated by eccentrics or cams, and the outlet ports from the valve box may be closed by sliding covers centred upon pins. A pointer, connected with the valve spindle, moves over a disc and indicates the position into which the spindle is to be turned to open communication with whatever delivery nozzle is desired.

3,641.—SUPPLY CISTERNS FOR WATER-CLOSETS: *F. A. Small.*—The inventor's object is "to produce a supply cistern . . . . which, while closing the ball-tap of the water supply while the water is drawn off to the closet by the outlet valve, closes the valve and opens the said ball-tap when the water is exhausted, and moreover has all its working parts above the water." He uses a second float, which operates a pivotted lever having an extensible end, by means of which lever and an intermediately-placed pivotted crank a hanging bar or rod attached to the valve-lever's outer end is disengaged from a pawl or detent, and allows the weighted end of the valve lever to fall and drop the outlet valve, which closes and stops the outflow of water, and also allows the floating ball of the inlet or ball-tap to fall and open the inlet tap, and so admits a fresh supply. The extensible end enables the plumber to regulate the time for duration of the action, as it may be adjusted to act either when the cistern is half empty or at any other stage of the flow. The ball-tap lever is so connected to the weighted end of the valve lever by a chain that it can only fall with the flow of water a limited distance, but it can rise sufficiently, as the water rises in the cistern, to close the inlet tap.

6,002. — EXHIBITIONS AND SIMILAR TOWERS: *T. Bradley.*—The tower, or other structure, is built of such a form that a roadway or path may be made to lead from its base to its summit by a gradually circuitous gradient; the winding roadway may also be made of solid masonry, or constructed upon supports, and may be provided with a tramway either upon or beneath it.

15,175.—AUTOMATICAL ACETYLENE GAS GENERATOR: *W. Marrs.*—This consists of (1) an enclosed water cistern fitted with escape pipes for conveying the gas into store chambers, whence the gas passes to a purifier, (2) an automatical generator inside the cistern (or two generators for double action), each generator being fitted with a moveable basket containing the carbide of calcium.

20,114.—CHIMNEY COWLS OR CAPS: *R. Kowalski.*—The cowl's cover has a door which leaves between itself and the cover a space having a downward inclination into which a current of outer air can enter from the top, as the current flows obliquely into the cowl's interior it disperses the smoke and leaves the space free for the following gases of combustion.

21,377.—SPRAYING APPARATUS, CHIEFLY DESIGNED FOR BATHS, &C.: *G. W. Weston, W. H. Weston, & M. Ancker.*—The novelty lies in the means for adjusting the rose to different altitudes or angles, and for adapting the sprinkler for application to faucets for hot and cold water; one end of the spout is connected with the rose or sprinkler, and the other end is fitted to a flexible nozzle, inserted in the faucet, and is held therein either frictionally or otherwise; to adapt the sprinkler to faucets of hot and cold water the lower end of the spouts is received into a coupling on which is a branch carrying the rose, the spouts being connected with the elastic or flexible nozzles, fitted respectively into the hot and cold water faucets.

22,591.—STOPPING OR CLOSING DEVICES FOR PIPES OR CONDUITS: *T. Farrer & W. W. Brown.*—To obviate the employment of a separate stopper for each size of pipe, and to enable the stopper to be used in a curve or bend, is contrived a cylindrical bag having hemispherical ends to one whereof is attached a short tube connecting with the inflating apparatus.

22,964.—PLUG SWITCHES OR WALL CONTACTS FOR ELECTRICAL CIRCUITS: *A. Vandam & T. H. Marsh.*—The invention relates particularly to switches wherein the leads are connected to concentric terminals, insulated from one another by a tubular piece of non-conducting material and an outer, partially tubular piece thereof. Its object is to provide for connecting one of the terminals to its respective lead by means of a fuse wire, which is passed over supports projecting from the outer partially tubular non-conducting piece.

22,980.—CONSTRUCTION OF FLAT ARCHES OR VAULTS: *M. Koenen.*—For arched structures in which a flat middle portion of the arch is supported by two arched haunches combined with iron bars embedded lengthwise in the arch and secured to its abutments; and to increase the span and carrying power iron bars are embedded in the arch or vault (which may be of either masonry or concrete), such bars being curved in a downward direction within the lower part of the arch's flat portion, while the portions within the upper portions of the haunches and spandril filling are bent upwards and are secured to the walls or girders forming the abutments. The arch haunches are supported upon the girder's bottom flange or upon a corbel fixed to the girder or other abutment.

23,963.—PROCESS FOR PRODUCING A PERMANENT ROOFING: *H. Christensen.*—The improvement consists in applying a heated mixture of tar and lime to the roofing, which is made of or covered with a thin layer of card or pasteboard; the lime serves to extract whatever water may be in the tar, and in acting upon its phenol-like constituents and their acids, forms phenolates and salts of lime as fixed elements of the roofing.

24,285. — FIREPROOF CEILINGS AND PARTITIONS: *United Asbestos Company & J. A. Fisher.*—To ornament ceilings or partitions (see their Specification 14,068 of 1897) the inventors contrive that the joints of the asbestos slabs shall occupy positions where they can be covered with mouldings, following the design, and to cover them they use hollow mouldings stamped up from thin asbestos mill board; where lengths of mouldings meet they support them along a short distance from the junction by blocks of wood.

NEW APPLICATIONS.

December 27—31.

27,276, J. H. Dorion, Cable-suspended Electrical Lamps. 27,294, Wrights, Fluid-regulating Valves or Cocks. 27,304, R. Catterall, Oil-lamps and Apparatus. 27,326, Friebel & Näke, Acetylene Gas. 27,327, F. G. Bate and Others, Artificial Stone. 27,329, C. Monplot, Public Lighting Apparatus. 27,334-6, A. T. Nye, Telephonical Apparatus. 27,337, Soc. Anon des Fontaines à Gaz, Gas-burners. 27,339, C. von Forell, Production of Cement from Lime-stone and Blast-furnace Slag. 27,342, H. Blaasch, Strengthening Incandescent Gas Mantles. 27,348, G. Barnes, Hanging Window-sashes. 27,349, W. S. Cole, Sash-bars. 27,353-4, W. Duffy, Cross-cut Sawing Machines and a Turning, Shaping, and Cutting Machine. 27,358, W. Cassels, Combined Bath and Wash-basin. 27,369 H. Ovenden, Parallel Bar Folding-steps. 27,370, Soc. Sautter, Harlé, & Cie., Automatical Compounding of Monophase or Polyphase Alternators. 27,380, F. V. Phillips, Window-stile Pockets. 27,382, J. Burgess, Sprinkler for Subduing Fire. 27,387, E. A. Eason, Tracing-cloth. 27,393, J. B. F. Herreshoff, Roasting-furnaces. 27,396, J. Willard, Ball-Cocks or Valves. 27,399, T. Cooper & Others, Gas Lamps. 27,404, J. I. Richards, Pressing Bricks, Tiles, &c. 27,407, M. J. Adams, Spring and Other Taps. 27,410, C. J. Waddell, Taps and Cocks for Fluids. 27,414, J. Clark, Electrical Lamp Bracket Joints. 27,416, W. R. Clay, Incandescent Gas Burners. 27,418, H. Cohn, Embossed Wall Hangings. 27,426, C. Gordon, Introduction of Warmed Fresh Air into Buildings or Apartments. 27,431, Hastie & Gill, Cement. 27,440, E. Cramer, Charging Apparatus for Cement Kilns and Furnaces. 27,441, C. Marty, Means for Reflecting Light. 27,454, Marshall & Hopwood, Winding Apparatus. 27,476, Line & Gosling, Working Sheer-legs and Crane-gibs In and Out on a Radius. 27,478, Hardings, Water Supply and Storage. 27,480, J. Freeman, Kilns for Burning Sanitary Pipes, Earthenware, Bricks, &c. 27,482, F. Lobnitz, Dredging Machinery. 27,489, W. R. Ladkin, Gate Fastener. 27,498, G. Zahikjanz, and 27,556, R. Bottelli, Electrical Incandescent Lamps. 27,506, J. Alda, Doors. 27,507, A. E. B. Hill, Levelling Rod. 27,516, H. A. L. Barry, Raising, Lowering, Transporting, and Discharging Materials. 27,526, J. Matthias, Thermo-Electrical Building Bricks or Blocks. 27,541, Wakelin & Weston, Detachable and Swivelling Electric Light Fittings. 27,545, F. Windham, and 27,618, L. Schmidt, Acetylene Lamps. 27,547, Kleine & Staff, Fireproof Concrete Ceilings and Floors. 27,549, C. Ettles, Roof, Roof-light, and Cupola-light Glazing. 27,557, J. Taylor, Securing Knobs to Spindles. 27,560, J. Stewart, Locking Device for Ash-pits, &c. 27,561, H. Walker, Acetylene and other Gas-burners. 27,567, J. T. Pearson, Granite, Stone, and Marble Sawing Machinery. 27,568, A. R. W. Syrett, a Drawing Instrument. 27,571, W. W. Bengough, Fastening and Securing Scaffold Poles. 27,578, G. S. Haseladn, Chimney Pots. 27,572, E. D. de Anguera, Ventilators. 27,580, Braham and Cunningham, Clamps. 27,583, F. S. Worsley and 27,606, A. M. Arter, Electrical Arc Lamps. 27,584, H. Pipe, Gas Burners. 27,591, M. J. Adams, Gas-lighting Apparatus. 27,601, R. Brigham, "Heads for Down Spouts Buildings," &c. 27,610, L. Lion, Scales or Rulers. 27,617, Robinson & Aspinall, Actuating Bolts and Similar Fastenings. 27,628, N. M. Hopkins, to Preventing the Bursting of Water-pipes by Freezing. 27,632-3, C. G. A. Streubel, Street and Similar Lamps, and Gas-cocks with Ignition Arrangements.

The last application for the year 1898 is numbered 27,639. In 1897 the applications amounted to 30,958, and in the previous year to 30,193. Of the applications made in the two years 1896-7 only 13,360 and 15,134 respectively, advanced beyond the initial nine months' provisional protection to the "completed specification" stage.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

January 4.—By WILKINSON, SON, & WELCH (at Brighton).

Brighton, Sussex.—35, Providence-pl., f.	£335
31 and 32, Red Cross-st., f., r. 26*l.*	550

January 5.—By SIM & RANDALL.

Lewisham.—4, Springbank-rd., u.t. 996 yrs., g.r. 12*l.*, r. 70*l.*	850
4, 5, and 6, Springbank Market, u.t. 996 yrs., g.r. 36*l.*, r. 210*l.*	2,510
Ilford.—48, Argyle-rd., u.t. 994 yrs., g.r. 7*l.* 17s., r. 42*l.*	445
Forest Gate.—539, 541, 543, and 545, Romford-rd., u.t. 90 yrs., g.r. 24*l.*, r. 120*l.*	1,180

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8/0/0 0/0/0
Teak, E.I.	load	10/10/0 15/10/0
Sequoia, U.S.ft.cu.		1/9/0 2/0/0
Ash, Canada, load		3/17/6 5/5/0
Birch, do.		3/0/0 5/0/0
Elm, do.		4/12/6 5/15/0
Fir, Dantsic, &c.		2/0/0 4/0/0
Oak, do.		3/5/0 3/15/0
Canada		4/0/0 6/0/0
Pine, Canada red.		0/0/0 0/0/0
Do. yellow		4/7/6 6/5/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg.		4/0/0 6/10/0
Wainscot, Riga, &c., log		3/15/0 5/15/0
Odessa, crown		3/15/0 5/15/0
Deals, Finland 2nd & 1st std. 100		9/15/0 10/5/0
Do. 4th & 3rd		9/15/0 10/5/0
Do. Riga		8/5/0 9/5/0
St. Petersburg, 1st yellow		11/15/0 14/5/0
Do. 2nd yellow.		10/15/0 12/5/0
Do. white		9/15/0 11/15/0
Swedish		9/15/0 16/15/0
White Sea		10/15/0 18/0/0
Canada, Pine 1st		18/15/0 25/5/0
Do. do. 2nd		13/15/0 17/0/0
Do. do. 3rd, &c.		6/0/0 10/0/0
Do. Spruce, 1st.		8/10/0 10/10/0
Do. do. 3rd and 2nd		7/5/0 8/10/0
New Brunswick		7/5/0 8/0/0
Battens all kinds		5/0/0 16/0/0
Flooring boards, sq., 1 in., prep. 1st		9/6 16/3
Do. 2nd		8/0 13/3
Other qualities—		6/3 7/0
Cedar, Cuba, ft.		/4 /4½
Honduras, &c.		/3½ /4½
Mahogany, Cuba.		/5½ /7
St. Domingo, cargo av.		/5 1/3
Mexican, do. do.		/3½ /4
Tobasco, do. do.		/4 /6½
Honduras, do.		/4 /6
Box, Turkey, ton.		4/0/0 15/0/0
Rose, Rio		7/0/0 14/0/0
Bahia		6/0/0 12/0/0
Satin, St. Doming.		/5 1/0

TIMBER *(continued).*		
Satin, Porto Rico		0/0/0 0/2/0
Walnut, Italian		0/0/3 0/0/7
METALS.		
Iron—Pig, in Scotland	ton	2/10/8 0/0/0
Bar, Welsh, in London		6/0/0 6/5/0
Do. do. at works in Wales		5/15/0 5/17/6
Do. Staffordshire, in London		6/5/0 7/10/0
COPPER—British cake and ingot		64/10/0 65/0/0
Best selected		65/0/0 68/10/0
Sheets, strong.		68/0/0 70/0/0
Chili bars		60/2/6 0/0/0
YELLOW MTL. lb.		5d. 5¼d.
LEAD—Pig		
Spanish	ton	13/5/0 0/0/0
English com. Brands		13/10/0 0/0/0
Sheet, English 6 lbs. per sq. ft. and upwards		14/10/0 0/0/0
Pipe		15/0/0 0/0/0
ZINC—English sheet	ton	28/0/0 0/0/0
Vieille Montagne		29/0/0 0/0/0
Spelter		24/10/0 24/12/6
TIN—Straits		97/0/0 0/0/0
Australian		97/10/0 98/0/0
English Ingots.		99/10/0 100/10/0
Banca		0/0/0 0/0/0
Billiton		0/0/0 0/0/0
OILS.		
Linseed	ton	17/0/0 0/0/0
Cocoanut, Cochin		27/15/0 0/0/0
Do. Ceylon		24/10/0 0/0/0
Palm, Lagos		21/15/0 0/0/0
Rapeseed, English pale		22/5/0 0/0/0
Do. Brown		20/15/0 0/0/0
Cottonseed ref.		15/0/0 16/0/0
Oleine		17/0/0 18/0/0
Lubricating U.S.		0/5/3 0/7/6
Do. Black		0/5/0 0/6/6
TAR—Stockholm	barrel	1/5/0 0/0/0
Archangel		0/18/0 0/0/0
Turpentine		32/10/0 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100. unless in some exceptional cases and for special reasons.]

AMWELL (Herts).—For rebuilding the "George the Fourth inn, Amwell, Herts, for Messrs. Christie & Co., brewers, Hoddesdon. Mr. James Farley, architect, Hertford:—

F. & F. J. Wood	£1,839	J. Bentley	£1,670
T. Hunt	1,820	W. Laurence, Waltham Abbey (accepted)	1,639
J. A. Hunt	1,789		

BRIDLINGTON QUAY.—For alterations to No. 34, Queen-street, for Mr. J. E. Darby. Messrs. Brodrick, Lowther, & Walker, architects, Central Chambers, Bridlington Quay:—

J. H. Hudson	£372	W. Moody, Bridlington Quay (accepted)	£446

BROMHAM (Bedfordshire).—For alterations and additions, cleaning, and painting the village schools. Mr. George P. Allen, architect, 6, John-street, Adelphi:—

Corby & Sons	£401 18	S. Foster	£345 14
P. White	376 17	T. H. Coleman*	327 0

* Accepted subject to modification.

BROMLEY (Kent).—For the erection and completion of house and stables for Mr. J. Goodwin. Messrs. Ashley & Armstrong, architects, 50, Berners-street, London, W.:—

Syme & Duncan	£1,477 9 6	T. Crossley & Son	£1,391
B. J. White & Son	1,474 0 0	T. W. Jones*	1,382
John Lonsdale	1,454 0 0	T. D. Gratty*	1,370
Douglas Payne	1,416 0 0	Pryer & Co.	1,366
R. A. Lowe	1,408 0 0	F. P. Duthoit	1,303

* Received late.

BULWELL (Nottingham).—For the erection of five houses, Scott's-street, for Mr. Geo. E. Butcher. Mr. F. C. Martin, architect, Angel-row, Nottingham. Quantities by architect:—

F. H. & J. W. Moore	£970	John Oscroft, Talbot-street, Notts (accepted)	£895
F. Messom	938	Squires & Bancroft	880
H. Jordan	900		

CHICHESTER.—For the erection of a hotel, &c., Selsey, for the Selsey Hotel Company. Messrs. Rake & Cogswell, architects, Prudential Buildings, Portsmouth:—

C. H. Roberts	£4,310	H. Jones	£4,000
Light & Son	4,210	W. Wallis, London and Littlehampton*	3,813
J. H. Corke	4,100		

* Accepted.

CHIPSTEAD (Surrey).—For alterations to the White Hart public-house for Messrs. Page & Overton, Limited. Mr. A. Broad, architect, 22, George-street, Croydon. Quantities by the architect:—

E. J. Saunders	£599	Pearson & Co.	£389
A. Bullock	594	W. Akers & Co.	387
E. Goulder	559	T. Bushby	380
R. Whitaker	418	J. J. Carrick	370
D. W. Barker	413	G. Cheeseman, Whyteleafe*	340
C. Nightingale & Sons	411		

* Accepted.

DEVIZES.—For the erection of new Bacon Factory at Devizes, for the Devizes Bacon Company. Mr. Ernest C. Isborn, architect, Devizes. Quantities supplied by Mr. F. H. A. Hardcastle, 5, Old Queen-street, Westminster, S.W.:—

Downing & Rudman	£4,877 0 0	A. Beazley	£3,947 0 0
J. Perkins	4,495 0 0	G. Moore	3,889 0 0
Drew Bros.	4,309 0 0	Douglas & Sons	3,644 3 9½
A. Krauss	4,300 0 0	R. B. Mullings	3,450 0 0
P. Ford	4,163 7 6	W. C. Chivers	3,330 0 0
Hayward & Wooster	4,111 0 0	Henry Ash*	3,289 0 0

* Accepted.

EDMONTON.—For repairs, &c., at "King's Head" public-house, Edmonton, for New London Brewery Company. Mr. J. Hamilton, architect:—

Neal	£400	Scarborough	£345
Connings	358	Snewin Bros. & Co.	324
Woodcroft	355		

ELIE, N.B.—For laying six miles of water-pipes, and other work, for the Local Authorities. Messrs. Belfrage & Carfrae, C.E., 1, Erskine-place, Edinburgh:—

R. Skinner	£5,548 3 7	D. Whyte	£4,970 18 4
L. Kelly	5,442 9 10	R. C. Brebner & Co.	4,929 1 10
J. Stevens	5,309 3 0	G. Mackay & Son	4,871 16 0
J. Kennedy	5,251 16 8	Nimmo & Coupar	4,803 11 7
J. Angus	5,209 10 3	J. W. Bain, 2, Lauriston-place, Dundee*	4,575 3 4
J. Morris & Sons	5,183 17 1		
T. Munro	5,112 12 11		

* Accepted.

ENFIELD and TWICKENHAM.—Accepted for the widening of Turkey-street Bridge, Enfield, and Kendal Bridge, Twickenham, for the Middlesex County Council. Mr. H. S. Wakelaw, C.E., County Surveyor, the Guildhall, Westminster, S.W. :—
Geo. Bell, Tottenham and Manchester.....£2,156

FAWKHAM (Kent).—For the erection and completion of two cottages. Messrs. Ashley & Armstrong, architects, 50, Berners-street, London, W. :—
John Lonsdale, Swanley Junction £484

LEAMINGTON.—Accepted for the erection of an entrance lodge, Victoria Park, for the Town Council. Mr. F. G. Cundall, architect, 41, Parade, Leamington :—
T. Pratt, Leamington £510

LONDON.—For alterations at No. 146, Lewisham High-road, for Messrs. Page & Overton, Limited. Mr. A. Broad, architect, 22, George-street, Croydon. Quantities by the architect :—

S. Roper	£505	W. Akers & Co.	£486
H. L. Holloway	492	T. D. Leng	473
J. Smith & Sons	492	S. J. Jerrard & Sons	455
S. R. Best	487	Hall Bros., New Cross*	428

* Accepted

LONDON.—Accepted for the erection of seven villa residences at Highcroft-road, Crouch-hill, N. :—
H. Wells, 17, Crouch-hill.....£4,500

LONDON.—For alterations and new shop front at 114, Richmond-road, S.W., for Mr. E. Biucchi. Messrs. Shaw & Galetti, architects, No. 49, Finsbury-pavement, E.C. :—

C. Speckley & Co.	£374 10	E. Swan & Co., Fulham*	£330 0
Lyle Manufacturing Co..	337 0		

* Accepted.

LONDON.—For alterations to the "Lord Nelson" public-house, Trafalgar-road, Greenwich, S.E., for Messrs. Barclay, Perkins, & Co. Mr. G. Hubbard, architect, 23, Finsbury-circus, E.C. :—

Wallis & Son	£3,120	H. L. Holloway	£2,533
Balaam Bros.	2,855	W. Nash, New Cross	2,398
F. & H. F. Higgs	2,820		

LONDON.—For new school, manual training, cookery centres, and caretaker's house, at Stonebridge-park, N.W., for the Willesden School Board :—

Dove	£22,995	E. Lawrance & Son	£20,793
Nightingale	22,873	Chessum & Son	20,697
Higgs & Hill	22,200	Yerbury	20,589
Holliday & Greenwood	21,189	George Neal (accepted)	20,423
Scrivener	20,945		

LOWER EDMONTON.—For the erection of new Infant School, Eldon-road, Lower Edmonton :—

Knight & Son	£10,067	Edwards & Medway	£8,383
Snewin Bros. & Co.	9,063	T. E. Sharpington	8,370
A. Porter	8,935	P. Hart	8,160
A. Monk	8,800	W. Lawrence	8,149
Chessum & Son	8,634		

PENGE.—For drainage and sanitary work, &c., at the Royal Watermen's Almshouses, Penge. Mr. L. Jacob, architect, 423, New Cross-road, S.E. :—

		Deduct if 6 in. in lieu of 9 in. pipes.
Akers & Co.	£1,171 0 0	£62 0 0
J. E. Davis	1,868 11 7	42 17 6
Falkner & Sons	1,230 0 0	33 0 0
Foreman Bros.	1,188 0 0	9 0 0
General Builders, Limited	1,232 0 0	32 0 0
Gregory & Co.	1,344 0 0	33 0 0
H. Leney	1,550 0 0	25 0 0
A. P. Maers	980 0 0	16 0 0
W. Mills	1,027 0 0	41 0 0
W. J. Penfold (accepted)	735 9 0	17 15 0
C. R. Pledge	1,368 0 0	19 0 0
Wenham & Waters	1,245 0 0	40 0 0

PUTNEY.—For the erection of stabling and coachman's cottage at Chartfield, Putney Hill. Mr. A. R. Thorn, architect, Elm Park Estate Office, 263, Fulham-road, S.W. :—

E. Parsons & Co.	£1,300	G. E. Selman*	£1,000
H. Roffey	1,276		

* Accepted

READING.—For private street improvement, Culver-road. Mr. J. Bowen, Borough Engineer, Reading :—

Thos. Free & Sons	£632 0 0	W. Reeves	£529 15 0
G. W. Talbot	608 9 8	Fred. Jones, Edmonton	525 13 2

* Accepted.

READING.—For private street improvement, College-road. Mr. J. Bowen, Borough Engineer, Reading :—

G. W. Talbot	£950 9 4	W. Reeves, Elm Park-road*	£797 10 0
Thos. Free & Sons	875 0 0		
Fred. Jones	808 15 2		

* Accepted.

TAUNTON.—For the execution of sewerage works, Target Field, for the Town Council. Mr. J. H. Smith, C.E., Municipal Offices, Corporation-street, Taunton :—

Allen & Son	£9,362 9 0	G. Bell	£7,805 0 0
R. H. B. Neal	8,470 0 0	W. S. Meredith	7,700 0 0
W. Gibson	8,441 16 7	B. Cook & Co., 16, Victoria-street, Westminster*	7,518 0 0
Facey	8,360 0 0		
H. W. Pollard	7,998 0 0		
R. Hitchcock	7,882 19 0		

* Accepted.

TOTNES (Devon).—Accepted for the construction of sewage and outfall works, also buildings, &c., for the Totnes Corporation. Messrs. Lomax & Lomax, C.E., engineers, Deansgate, Manchester :—
Geo. Bell, contractor, Tottenham and Manchester....£8,854

TWICKENHAM.—For the supply of 500 tons Guernsey granite spalls, for the Urban District Council. Mr. F. W. Pearce, surveyor, Town Hall, Twickenham :—

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L. Somerfield	12 3	R. L. & J. Fennings, London Bridge*	10 10
W. Griffiths	11 5		
J. Mowlem & Co.	11 2		

* Accepted.

TO CORRESPONDENTS.

G. O.—S. W. (amounts should have been stated).—R. L. (next week)

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Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

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Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

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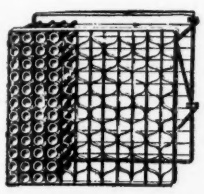

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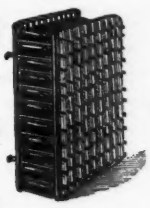

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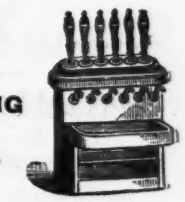

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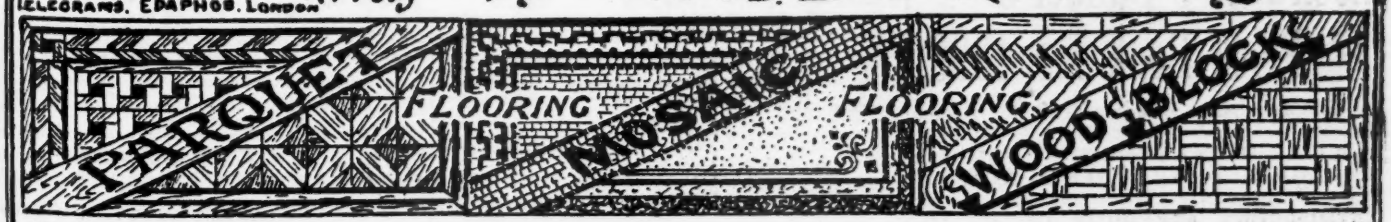

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The above Council having accepted a Tender for the Construction of Works of Sewage Disposal, invite APPLICATIONS for the post of CLERK of the WORKS.
Applications, stating salary, and enclosing not less than three recent testimonials, must be received by me not later than THURSDAY, the 19th instant.
Such applications to be marked "Clerk of Works."
The appointment will be for a period of one year.
GEORGE FELL,
Clerk.
Aylesbury,
January 11th, 1899.

ARCHITECTURAL DRAUGHTSMAN WANTED temporarily under the Corporation of a County Borough in the Midlands. Must be accustomed to heavy foundation work, steel and iron roof, and other construction work in connexion with an electric light station.—Applicants must state age and salary required and enclose testimonials, Box 263, Office of "The Builder."

ART PUPIL TEACHERS.
The School Board for London have VACANCIES for ART PUPIL TEACHERS.
Candidates must be 14 years of age or over, and must have obtained a First-class Certificate in Second Grade Freehand and Model Drawing, and must pass (if they have not already done so) the Board's Examination for Candidates, or the Junior Oxford or Cambridge Local Examinations, or must be reported upon by one of the Board's Inspectors as having received an education equivalent to the requirements of the Board's Candidates' Examination.
The scale of salary, subject to specified conditions, is as follows:—
First Year —8s. a week.
Second Year —10s. a week.
Third Year —12s. 6d. a week.
Fourth Year—15s. a week.
Applications, which must be made on a form to be obtained at the Head Office of the Board, and accompanied by copies only of not more than three testimonials, must reach the Clerk of the Board, School Board for London, Victoria Embankment, W.C. not later than the 25th JANUARY, 1899, marked outside "Art Pupil Teacher Application."
Persons applying through the post for forms must enclose a stamped addressed envelope.

ASSISTANT CIVIL ENGINEERS (2nd Grade) in Her Majesty's Naval Establishments (aged 23-28).—An open COMPETITIVE EXAMINATION will be held in February. Technical training and qualifications necessary.—Applications must be received at the Civil Service Commission, not later than 9th FEBRUARY, on printed forms to be obtained, with particulars, from the SECRETARY, Civil Service Commission, London, S.W.

BOROUGH of REIGATE.
TO QUANTITY SURVEYORS.
The Sanitary Committee of the Reigate Town Council invite APPLICATIONS for the temporary engagement (four months) of a properly qualified QUANTITY SURVEYOR to take out the quantities of the proposed Fever Hospital and prepare detail drawings at a salary of three guineas a week.
Preference will be given to candidates having had experience in hospital construction.
Applications, accompanied by two testimonials, and endorsed "Quantity Surveyor," to be sent to the undersigned not later than MONDAY, the 16th inst.
W. H. PRESCOTT, C.C.
Borough Surveyor.

URBAN DISTRICT COUNCIL of HANDSWORTH (in the County of Stafford)
TO SURVEYORS' CLERKS.
The District Council of Handsworth invite APPLICATIONS for the APPOINTMENT of CLERK in the Surveyor's Office.
Applicants must have had experience in a Municipal Surveyor's office, and be competent to keep accurately the various accounts and books prescribed by the Local Government Board. Shorthand and typewriting necessary.
Salary 30s. per week, paid monthly.
Applications, accompanied by copies only of three recent testimonials, to be sent to me not later than MONDAY, JANUARY 30th, 1899, endorsed "Surveyor's Clerk."
Canvassing, either directly or indirectly, will be a disqualification.
By order,
(Signed) E. KENWORTHY, A.M.I.C.E.
Surveyor.
Council House,
Handsworth, Staffs.
January 11th, 1899.

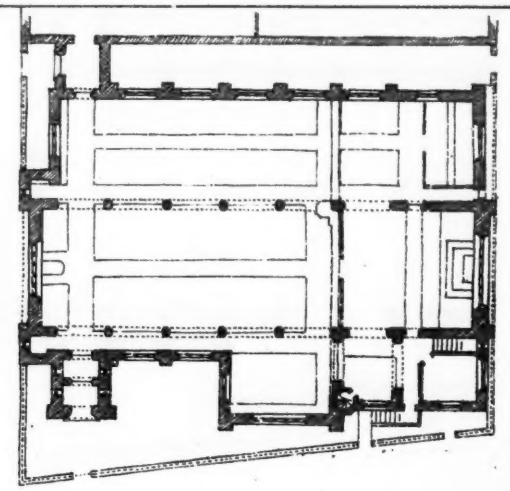
BOARD of WORKS for the HOLBORN DISTRICT.
INSPECTOR OF CLEANSING.
The Board proposes to APPOINT an INSPECTOR of STREET CLEANSING, at a salary of 2*l.* 10*s.* per week.
The appointment will be made subject to one month's notice, and printed particulars of duties may be obtained at the Clerk's Office.
Applicants of ages not exceeding 40 may send applications, in their own handwriting, stating the age and experience of the candidate.
These applications must be accompanied by copies of two recent testimonials, be marked on the outside "Inspector of Cleansing," and addressed to the Clerk of the Board, not later than TWELVE noon on TUESDAY, JANUARY 31, 1899.
Selected candidates will receive notice to attend a committee at the Board's Offices on a future day.
The successful applicant will be required to wear uniform, which will be provided at the Board's expense, and to reside in the district.
Personally canvassing members of the Board will disqualify candidates.
MATTHEW H. HALE, Clerk to the Board.
Clerk's Office, Holborn Town Hall, W.C.
January 11th, 1899.

LONDON QUANTITY SURVEYOR requires ASSISTANCE in TAKING-OFF.—State terms, references, and particulars of experience, Box 274, Office of "The Builder."

GENERAL LIBRARY,
UNIV. OF MICH.
JAN 25 1899

INK-PHOTO SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

DESIGN FOR A LIBRARY CHIMNEY NOOK — By Mr. A. Finn Brophy.



Key Plan.

The South-East Aspect

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

NEW CHURCH FOR ST. LUKE'S PARISH, DARLINGTON.—Messrs. Clark & Moscrop, Architects.

PHOTO-LITHO. SPRAGUE & Co. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

NEW CHURCH FOR ST. LUKE'S PARISH, DARLINGTON.—Messrs. Clark & Moscrop, Architects.

WORKMEN'S HALL · CLUB ·
SAVINGS BANK & OFFICES ·
NEWHALL ST & BREAD ST · BIRMINGHAM
MESSRS ESSEX, NICOL & GOODMAN
Architects · Birmingham · 1897

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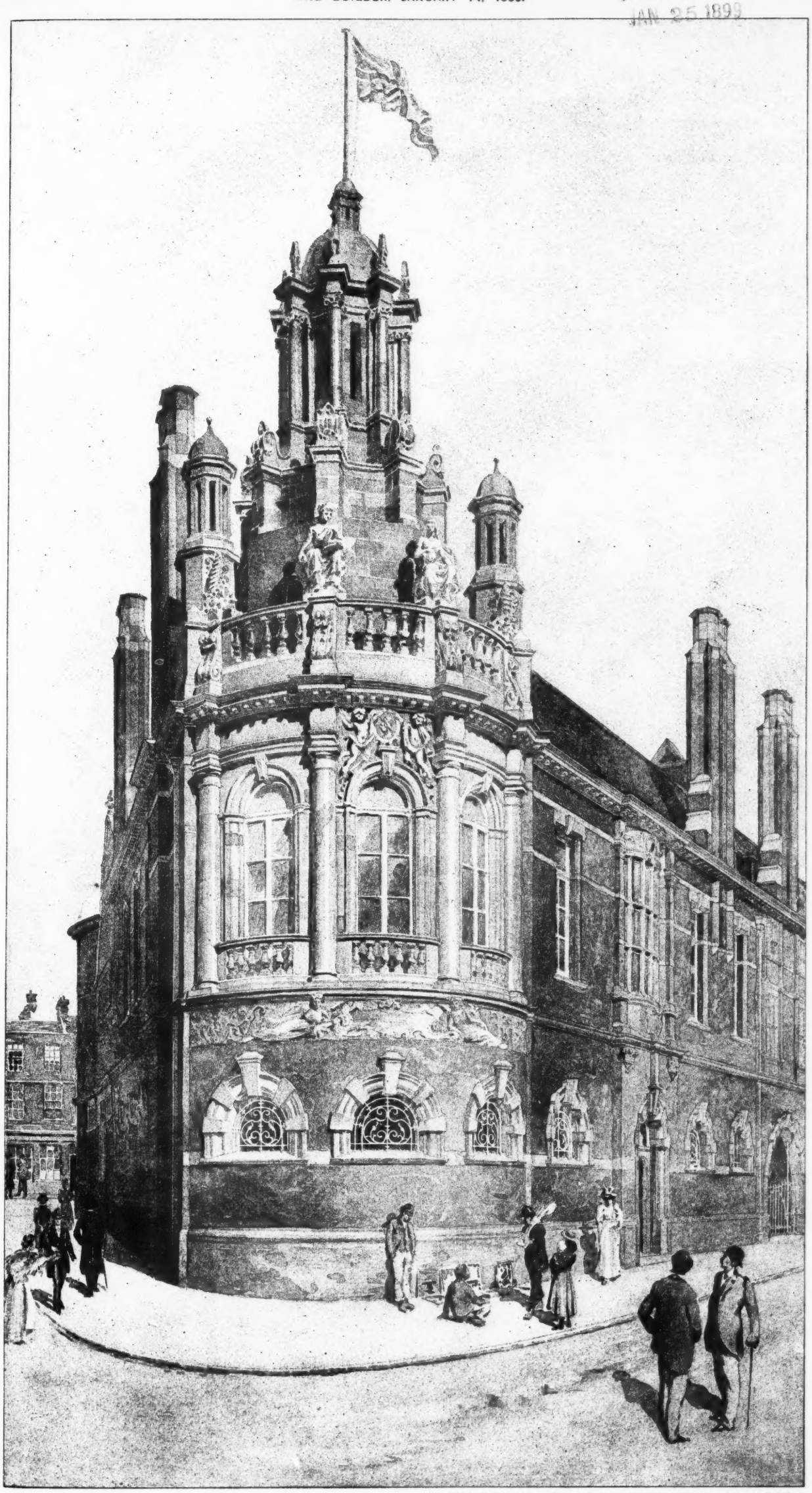
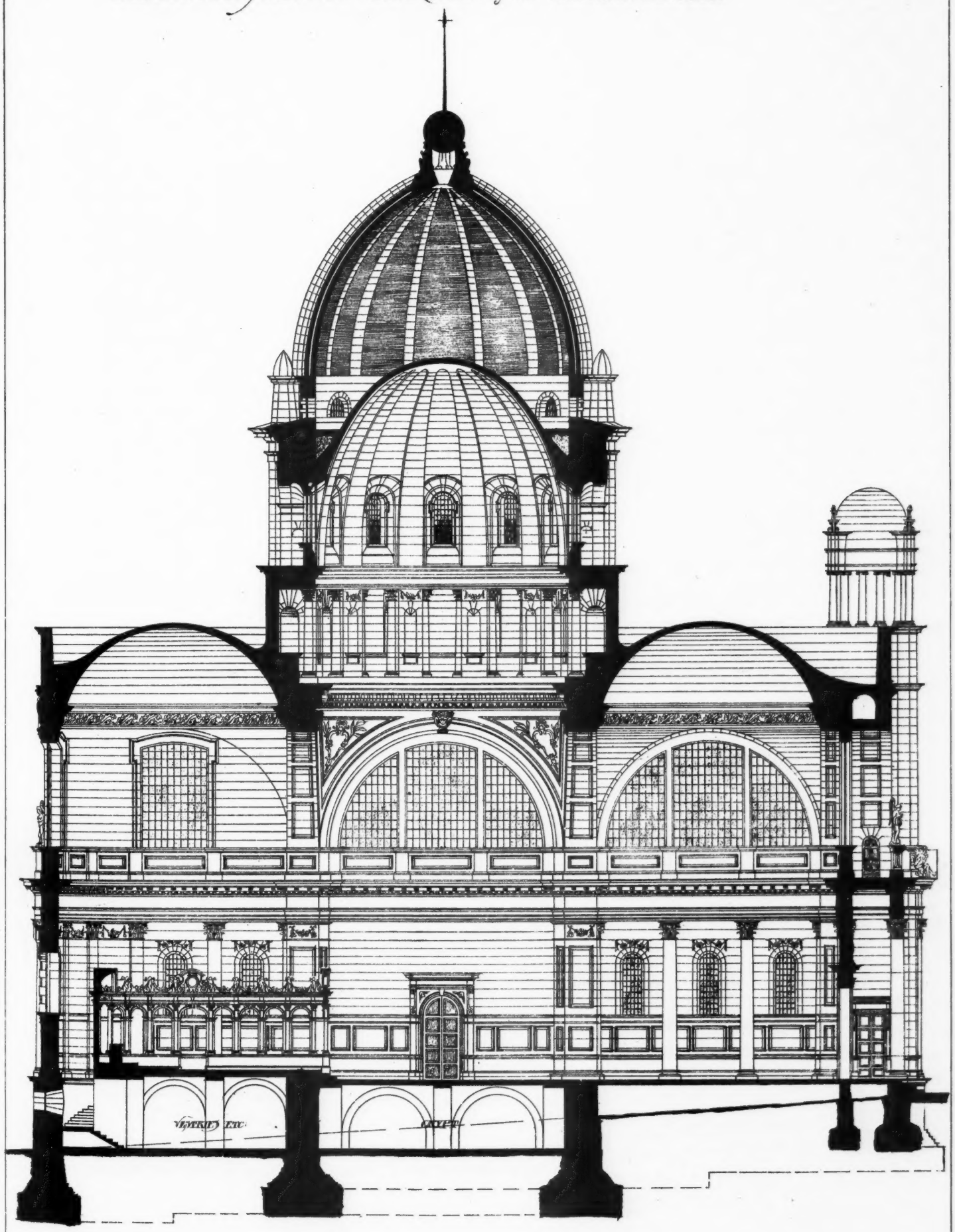
JAN 25 1899



INK-PHOTO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ADDITION TO TOWN-HALL BUILDINGS, CLERKENWELL.—Mr. C. Evans-Vaughan, F.R.I.B.A., Architect

DESIGN FOR A TOWN CHURCH. By Mr W. Hawke. A.R.I.B.A.



SECTION LOOKING SOUTH

SCALE
0 10 20 30 40 50 Feet

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

yal Academy Travelling Studentship, 1898.

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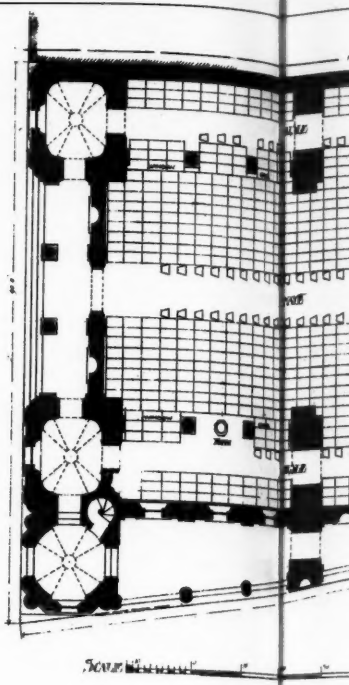
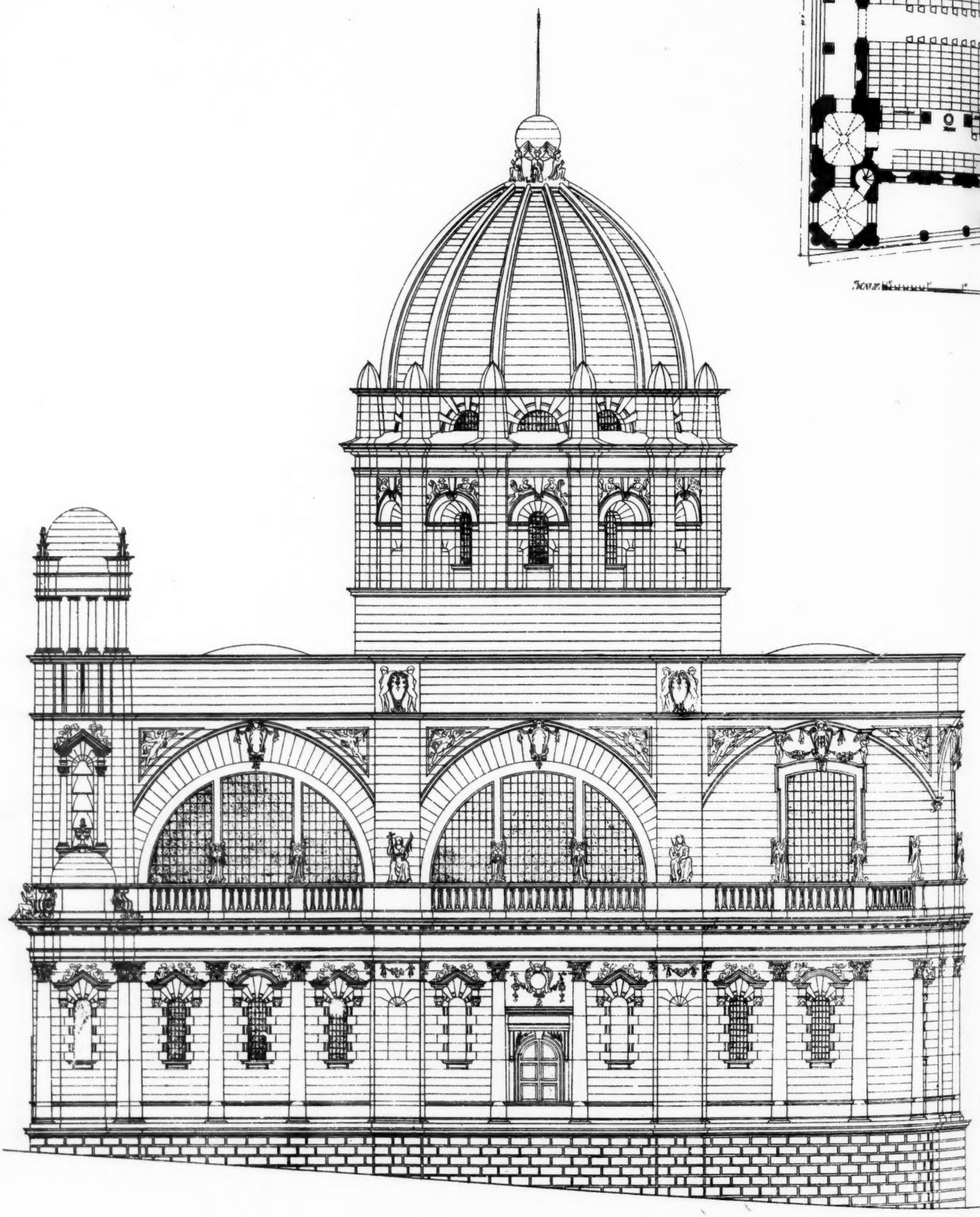
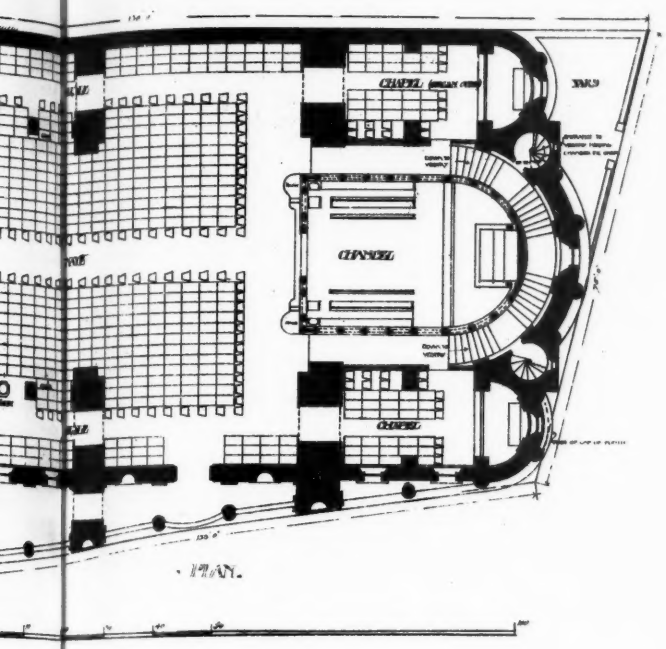




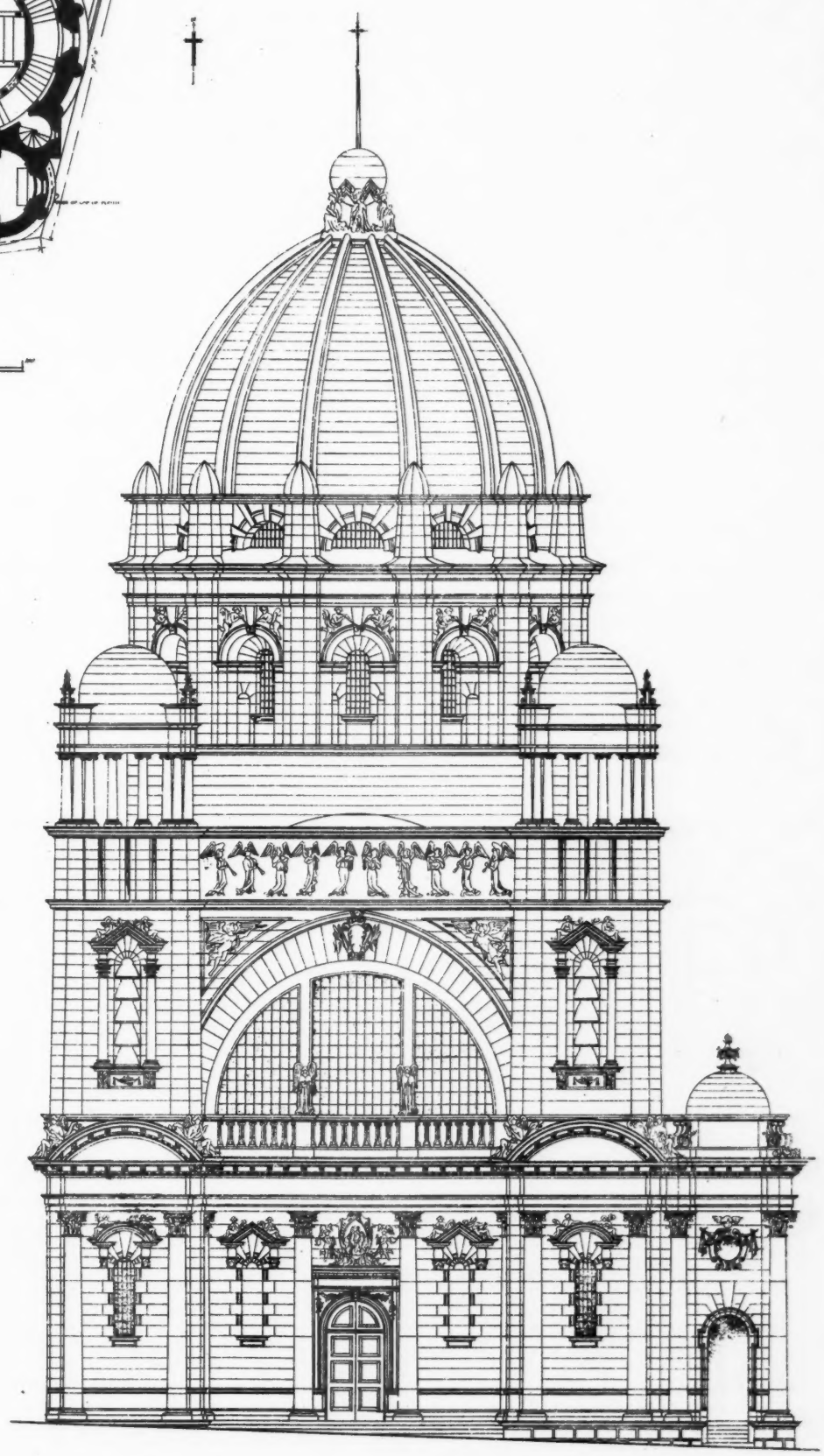
SOUTH ELEVATION.

SCALE.
0 10 20 30

Royal Academy Travelling Studentship, 1898.



PLAN.



WEST ELEVATION.

SCALE.
20 30 40 50 Feet

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